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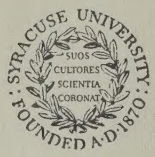

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CURRICULUM PRACTICES IN THE JUNIOR HIGH SCHOOL AND GRADES 5 AND 6

By
JAMES M. GLASS

THE UNIVERSITY OF CHICAGO · CHICAGO · ILLINOIS

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CURRICULUM PRACTICES IN THE JUNIOR HIGH SCHOOL AND GRADES 5 AND 6

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By
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Pennsylvania State Department of Public Instruction

THE UNIVERSITY OF CHICAGO
CHICAGO · ILLINOIS

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PREFACE

During the first half of the year 1923 the author undertook, at the invitation of a committee of the Commonwealth Fund, an investigation of the practices of a number of school systems in the administration of their elementary courses of study. This investigation was one of a series dealing with the various units of the American educational system. It concerned itself with Grades 5 to 9 and attempted to secure detailed information regarding the courses of study. The results of the investigation, which was carried on in fourteen cities, are presented in the following pages.

A study of the curriculum practices in fourteen municipal school systems necessarily involves the co-operation of many persons. It is difficult, therefore, to acknowledge properly the co-operation of all who participated in the investigation.

The writer wishes to acknowledge first the unfailing courtesy and co-operation of the superintendents, their associates, and the principals who assisted in directing the work of investigation in their own centers. Their interest stimulated teachers to undertake voluntarily and earnestly the arduous task of making detailed reports. Deep gratitude is extended to the several hundred teachers who reported their classroom practices. It may be some compensation for these teachers to know that their contributions have made it possible to prepare this report wholly from the point of view of the actual curriculum practices of the classroom and thus to avoid the more or less visionary pronouncements of printed courses of study and other documentary statements about curriculum practices.

Helen S. Watson, assistant superintendent of the Los Angeles schools, conducted the investigation in Los Angeles and secured the co-operation of the school system of Berkeley. Acknowledgment is made to Miss Watson and H. B. Wilson, superintendent of the Berkeley schools, for their very helpful assistance in thus extending the investigation to include representative school systems of the Pacific Coast.

The investigation covered thirteen subject fields. It was necessary to organize a series of special questionnaires and subject outlines for each of these fields. The preparation of the questionnaires was an important and vital step in the investigation. The analysis of the subject fields into divisions and units of teaching involved wide knowledge of existing curriculum practices. For assistance in this part of the investigation the

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writer gratefully acknowledges the co-operation of the following individuals: art questionnaire, C. Valentine Kirby, director of art education, Pennsylvania State Department of Public Instruction; commercial education questionnaire, Frederick G. Nichols, assistant professor of education, Harvard University; grammar outline and questionnaires in English composition and literature, A. Laura McGregor, assistant principal of the Washington Junior High School, Rochester, New York; penmanship questionnaire, H. C. Walker, supervisor of penmanship, St. Louis, Missouri; geography outline, Erna Grassmuck, director of geography, Pennsylvania State Department of Public Instruction; health outline and questionnaire, Charles H. Keene, director of health education, Pennsylvania State Department of Public Instruction; general home economics outline, Helen Dodge Taylor, director of home economics, Pennsylvania State Department of Public Instruction; industrial arts outline, F. Theodore Struck, assistant director of industrial education, Pennsylvania State Department of Public Instruction; Latin questionnaire, Mason D. Gray, special investigator of the American Classical League; mathematics outline, J. Albert Foberg, director of mathematics, Pennsylvania State Department of Public Instruction; modern language outline, G. C. L. Riemer, principal of the State Normal School at Bloomsburg, Pennsylvania; music questionnaire, Will Earhart, director of music, Pittsburgh, Pennsylvania; science outline, Harry A. Carpenter, head of the science department, West High School, Rochester, New York; history outline, Charles E. Finch, director of the junior high school grades, Rochester, New York; community civics, vocational civics, and economic civics outlines, Charles E. Finch, Rochester, New York, and J. Lynn Barnard, director of social studies, Pennsylvania State Department of Public Instruction.

To Charles H. Judd, W. W. Charters, and A. B. Meredith, of the committee in immediate charge of the investigation, and to Max Farrand, L. P. Ayres, E. P. Cubberley, E. L. Thorndike, and S. P. Capen, members of the Educational Research Committee of the Commonwealth Fund, the writer extends his special acknowledgment for making the investigation possible and for counsel received during both the period of organization and the period of the field survey.

J. M. G.

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CHAPTER I

INTRODUCTION

There is nothing more characteristic of American schools than the fact that they are organized and conducted as independent local units. Especially is it true that each school system arranges the details of its courses of study without coercion from any outside authority. State departments of public instruction often advise, through general outlines, regarding the ground to be covered in the subjects of instruction, but even when these general outlines are accepted as guides, individual school systems and often individual teachers are free to determine the emphasis which is to be given to particular sections of a subject.

The result of local autonomy is that a great many experiments are being tried in American schools. Some of these experiments are undertaken with full consciousness, on the part of those who inaugurate them, of the need of reform. Others are being tried by teachers and school superintendents who are looking for better methods of instructing pupils and are confused because there are no universally accepted practices in the schools around them.

The wide divergences in the practices of American schools can be made a most helpful basis for educational progress if some method can be devised of finding in the midst of these divergences those practices which are most successful. In other words, if the schools of this country can take advantage of this free experimentation by adding to their present local independence some means of comparison of results which shall serve as a rational guide to local initiative, American democratic school organization will be perfected without resorting to the kind of authoritative unification of educational systems which has been common in Europe.

In Europe, education has been guided by the central governmental authorities. Strict dictation of the content of the curriculum and of the time allotted to each division of the curriculum has been the rule. The result is that educational practices have been much less subject to change in the older civilizations than in this country. What has been done in European schools has, as a consequence, often been better done as compared with the work done in schools on this side of the Atlantic, but the conservatism inherent in the organization of the European schools has prevented the kind of development which has been characteristic of our progressive, though less well systematized, democratic schools.

In addition to the general argument which can be presented in favor of a continuation of the American plan and the development of a means of comparing results which shall guide future local experimentation, there are special reasons why at this stage in the evolution of American schools it is peculiarly appropriate that a movement should be started for a careful study of such experience as has been accumulated. This country has in recent years passed through a period of very great expansion of its educational system, and there are evidences clearly visible to anyone who studies the schools of today that an era of fundamental reorganization is at hand.

Among these evidences of imminent reorganization are the following: First, there is an insistent demand that more information be introduced into the school which shall prepare pupils for intelligent citizenship. This new body of material cannot be put into the curriculum without some kind of a radical readjustment because the time of the school seems to be fully occupied with the traditional subjects.

Second, the school has been made responsible by modern society for many forms of training which formerly were provided in the home or in industry. The appearance of household arts and shopwork in the elementary-school curriculum has made it very urgent that these practical subjects and such traditional subjects as reading and arithmetic be adjusted to one another with the fullest regard to the efficiency of the pupils in later life and to the harmonious correlation of the subjects taught in the school.

Third, a clear recognition of the different kinds of educational needs of pupils of different ages and of varying degrees of native intelligence has made teachers aware of the advantages of putting in the same classes, for purposes of teaching and recreation, those pupils who are of the same degree of maturity and of the same intellectual bent.

Other evidences could be cited, but perhaps those which have been enumerated will be accepted as supporting adequately the general argument. Social progress and educational experience have brought the communities of the United States to the point where their schools can no longer accept with complacency a program of studies or a form of organization laid down a generation ago. The same spirit of progress which has changed the character of American industry must be recognized as operative in the educational system. This being the case, it is highly desirable that guidance for the future development of the schools shall be found in the scientific study and comparison of all of the experiments which are now being tried in local school systems.

CHAPTER II

THE NEED OF SCIENTIFIC RECONSTRUCTION OF THE CURRICULUM

The report which is presented in the following pages is a first step in the direction of such a study as is suggested in the Introduction. The writer investigated in 1923, through personal visits, a number of school systems in different parts of the country. He was commissioned to seek information in each of these school systems with regard to the amount of time devoted to the major subdivisions of the curriculum administered to the pupils in the fifth, sixth, seventh, eighth, and ninth school years or in as many of these years as could be studied with the co-operation of the local teachers and school supervisors in the week which was allotted to each city.

It was possible under this general plan of study to cover fourteen centers. They were chosen in different parts of the country with a view to including especially those which had undertaken some special reconstruction of the upper grades of the elementary school. The full list of the centers studied is as follows: Atlanta, Georgia; Berkeley, California; Birmingham, Alabama; Cleveland, Ohio; Decatur, Illinois; Denver, Colorado; Detroit, Michigan; Kansas City, Missouri; Los Angeles, California; Okmulgee, Oklahoma; Pittsburgh, Pennsylvania; Rochester, New York; St. Louis, Missouri; and Somerville, Massachusetts.

The plan of procedure was as follows. A letter was sent to the superintendent of schools in each center selected for study, and co-operation was invited. In every case cordial co-operation was promptly given. This meant that the writer of this report was put into direct contact with the principals and teachers of two typical schools in each school system and was allowed to hold conferences with them and to receive through them a detailed account of the practices in their schools.

The next step in the plan of study was to analyze the subjects of instruction into their main divisions. Thus mathematics was divided into three major subject divisions, namely, arithmetic, intuitive geometry, and algebra. Each subject division was further subdivided into major units of teaching. For example, arithmetic was subdivided into five units of teaching—fundamental operations, tables of weights and measures, percentage, mensuration, and social arithmetic. Each major unit

of teaching was further analyzed into a number of divisions of units of teaching. For example, fundamental operations was divided as follows: fundamental operations as applied to integers, as applied to common fractions, and as applied to decimal fractions. Other subjects were analyzed in like fashion.

Printed and mimeographed sheets were prepared on which entries could be made relative to the subjects of instruction and their subdivisions. These sheets were put into the hands of the teachers. Conferences were held with them in order to make sure that they understood the blanks. They were then asked to indicate in each case the amount of time which they devote during the year to classroom work.

The results secured have been tabulated and will be presented later in this monograph. The tables aim to show the practices of each of the

TABLE I

HIGHEST, LOWEST, AND AVERAGE NUMBER OF MINUTES ALLOTTED EACH WEEK TO ENGLISH IN THE FOURTEEN SCHOOL SYSTEMS

Grade	Highest Number of Minutes	Lowest Number of Minutes	Average Number of Minutes
5	500	225	415.6
6	500	225	404.0
7	400	180	303.6
8	435	200	269.5
9	420	200	265.7

school systems studied and to provide an easy means of comparison of these practices.

No effort was made to test the results achieved by the pupils in the different school systems. As previously stated, this study is merely a first step in a general examination of American practices. It arrives at one perfectly clear conclusion, namely, that the periods of time devoted in various school systems to a given subject of instruction and to the subdivisions of that subject are impressively different. One cannot examine the findings without being led at once to the question, How can school systems differ so radically if all are producing results that are satisfactory?

By way of illustration of the kind of results secured let us examine a summary dealing with English, a subject universally included in the curriculum of the elementary schools. When the practices of schools differ as widely as indicated by the figures in Table I, very little argument is required to establish certain conclusions. First, experimentation in the administration of the curriculum has evidently followed widely diver-

gent lines in different school systems. Second, it is urgently to be desired that those who are spending the longer periods justify their practices and answer the question whether they have proper regard for the demands of economy; those who are using the shorter periods should answer the question whether they are giving adequate training.

Since Table I deals with the absolute number of minutes a week devoted to English, it is open to the criticism that the relative emphasis on English in the various school systems is not shown because there is no uniformity with regard to the number of days in the school year and the number of hours in the school day. Another series of figures has accordingly been prepared showing the relative amount of time given to English. The percentage of the school week devoted to English has been computed and is recorded in Table II. The figures in this table do not modify

TABLE II

HIGHEST, LOWEST, AND AVERAGE PERCENTAGE OF THE SCHOOL WEEK DEVOTED TO ENGLISH IN THE FOURTEEN SCHOOL SYSTEMS

Grade	Highest Percentage	Lowest Percentage	Average Percentage
5	31.7	16.7	26.0
6	31.7	15.8	25.3
7	29.1	12.1	19.0
8	32.2	12.1	16.3
9	31.1	12.1	16.5

the conclusions reached in connection with Table I.

If we turn to the divisions of another major branch of study universally accepted in the core curriculums of all fourteen school systems, we find practices as divergent as those shown in Tables I and II. A summary is given in Table III of the time devoted to the subject divisions of general mathematics, namely, arithmetic, intuitive geometry, and algebra. This table shows that as the analysis of the curriculum is extended into the details of the subject divisions an even greater degree of divergence prevails than was revealed in Tables I and II. It is evident that, in addition to the divergent practices in time allotments to arithmetic in Grades 5, 6, 7, and 8, there is some experimentation with the articulation of arithmetic with algebra and intuitive geometry. The experimentation is of two types. First, in some cases there is an introduction of geometry and algebra into Grades 7 and 8; second, in other centers which have adopted general mathematics numerous variations are being tried in the amount of time allotted to the subject.

An extension of the analysis to the units of teaching in arithmetic reveals similar variations in practice. In this case the time allotments

TABLE III

HIGHEST, LOWEST, AND AVERAGE NUMBER OF MINUTES ALLOTTED EACH WEEK TO THE DIVISIONS OF REQUIRED GENERAL MATHEMATICS IN THE FOURTEEN SCHOOL SYSTEMS

Grade	Arithmetic			Algebra			Intuitive Geometry		
	Highest	Lowest	Average	Highest	Lowest	Average	Highest	Lowest	Average
5	300	125	204	.....	.....	.....	.....	.....	.....
6	275	120	200	.....	.....	.....	.....	.....	.....
7	275	100	192	82	23	53*	150	9	90†
8	275	75	165‡	150	69	104†	105	8	75§
9	225	100	175‖	300	100	216‡	125	60	85‖

* Only two centers reported algebra in the seventh year; the average is taken for these two school systems.

† Six centers. § Five centers.

‡ Ten centers. ‖ Three centers.

are considered for each semester in each of the five grades. The figures in Table IV show in minutes a semester the extent of variation between

TABLE IV

DIFFERENCE BETWEEN THE HIGHEST AND THE LOWEST NUMBER OF MINUTES ALLOTTED EACH SEMESTER TO THE UNITS OF TEACHING IN ARITHMETIC

Grade	Fundamental Operations	Tables of Weights and Measures	Percentage	Mensuration	Social Arithmetic
5-1	3,950	1,595	200	20	925
5-2	3,475	1,350	1,157	283	750
6-1	3,800	2,900	1,600	875	200
6-2	1,275	2,900	2,300	525	550
7-1	2,290	2,090	1,400	1,020	1,450
7-2	1,600	415	2,350	1,920	2,200
8-1	280	775	2,550	2,150	2,025
8-2	640	1,850	2,650	680	1,975
9 1	120	.....	870	.....	.....
9-2	.....	.....	.....	.....	.....

the time allotments in the fourteen school systems. Table V shows the number of centers which give instruction in the various topics in the different semesters.

A review of the complete tables in the following chapters will show similar divergence of practice in all of the constants of the curriculum.

Wide variations in time distribution characterize the whole curriculum. There is revealed in all of these facts a general disturbance in curriculum administration which must be recognized as indicative of a generally accepted purpose to reconstruct the curriculum.

Turning from the subjects which are required in all of the school systems to those which are optional in any or all of the systems, we find that variations in practice are so general that there can hardly be said to be any common practice. In a consideration of the elective subjects we are dealing almost wholly with the last three grades covered in this investi-

TABLE V

NUMBER OF CENTERS WHICH INCLUDE EACH UNIT OF TEACHING IN ARITHMETIC IN THE WORK OF THE VARIOUS SEMESTERS

Grade	Fundamental Operations	Tables of Weights and Measures	Percentage	Mensuration	Social Arithmetic
5-1	14	9	2	2	3
5-2	14	10	3	2	4
6-1	14	11	8	3	3
6-2	10	11	13	7	5
7-1	12	5	11	5	7
7-2	12	8	11	10	12
8-1 *	4	4	4	3	8
8-2 *	5	6	6	3	8
9-1	2	1	2	1	1
9-2	.....	.....	1	.....	1

* Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

gation, that is, the seventh, eighth, and ninth years, or the junior high school period. Certain major subjects have been so generally accepted as required subjects that they are rarely offered as electives in the seventh, eighth, and ninth years; these are English, mathematics, geography, history (social studies), and health education. However, there are in the curriculum today several other subjects which are demanding recognition in the core curriculum. The extent to which these subjects are administered as constants or electives may be seen from Tables VI and VII. These tables summarize conditions in the administration of the fine arts—art (drawing) and music; the practical arts—industrial arts and home economics; and science. Natural science and the fine and practical arts are being steadily incorporated into the core curriculum, thereby increasing the number of required subjects from the generally accepted four—health, English, mathematics, and social

studies—to six, including these four and the two mentioned, namely, natural science and the arts courses.

TABLE VI

NUMBER OF CENTERS WHICH INCLUDE SCIENCE AND THE FINE AND PRACTICAL ARTS IN THE CORE CURRICULUM

Grade	Science	Art	Music	Industrial Arts	Home Economics
7	6	12	13	12	11
8*	7	10	11	10	9
9	3	4	9	5	3

* Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

TABLE VII

NUMBER OF CENTERS WHICH INCLUDE SCIENCE AND THE FINE AND PRACTICAL ARTS AS ELECTIVES IN THE PROGRAM OF STUDIES

Grade	Science	Art	Music	Industrial Arts	Home Economics
7	2	3	13	7	5
8*	1	5	10	9	8
9	8	11	11	13	13

* Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

The slow surrender of the traditional subjects, which have long been accepted because of their supposed disciplinary values, to the newer subjects which stress social and practical values is a matter of general knowledge. The conditions of curriculum administration, however, which have resulted from widespread experimentation in the readjustment of disciplinary-cultural and social-practical values are not so generally understood. It is these conditions of extensive and general divergence of present practices which it is the purpose of this chapter to disclose.

The chaotic condition revealed by the tables presented and by those which will be given in later sections of the report would be utterly discouraging if it were not for the prospect that there will inevitably follow efforts to bring about curriculum reconstruction in general by methods which have already been adopted in several of the fourteen school systems, namely, purposeful and persistent scientific research.

It will perhaps be appropriate to sketch the present development of the scientific movement in education as related to the facts presented in the foregoing pages.

The recent scientific movement in education began with the development of standards of measurement. Practicable methods of measuring general intelligence and the results of teaching are in universal use. The outcome is a degree of discriminating and purposeful administration previously impossible. In a large majority of the fourteen centers the administrative direction of the curriculum is in the hands of a member of the superintendent's staff, variously designated as the director of measurement and research, director of educational statistics, associate superintendent in charge of educational research, director of the bureau of measurement, etc.

The scientific determination of the results of teaching is leading in all of these centers to a scientific evaluation of the materials of instruction. A scientific analysis of the materials of teaching must in turn lead to an analysis of the objectives of instruction. If objectives are to be scientifically established, they must be based on a scientific study of the needs of pupils as revealed in modern society and of the skills, abilities, and attitudes conditioning useful citizenship.

The present status of the scientific movement in education may be gauged by the following facts revealed in the investigation: (1) All of the fourteen centers are employing measurements in the scientific determination of the results of teaching and of the ability to learn. (2) There is general organization of committees to reorganize the materials of instruction. Most frequently the purpose of these committees is revision, not reconstruction. (3) There are a few centers in which definite efforts are directed toward a re-evaluation of objectives. (4) In a limited number of the centers a scientific study of the actual needs of the pupils is being undertaken. In each case this step has been taken subsequent to the other stages of the movement.

CHAPTER III

THE CURRICULUM OF THE JUNIOR HIGH SCHOOL

A separate chapter may properly be devoted to those changes in the curriculum which are characteristic of the junior high school, because the organization of this new type of school has been the cause and occasion of most of the significant modifications which have appeared in the courses of study of the seventh, eighth, and ninth years. The writer was asked to contribute a statement of his findings with regard to the junior high school to the 1924 yearbook of the Department of Superintendence of the National Education Association. He prepared a report[1] for that publication which is here repeated in condensed form.

The curriculum of the junior high school includes certain constants and certain electives. Table VIII shows the average number of minutes

TABLE VIII

AVERAGE NUMBER OF MINUTES A WEEK ALLOTTED TO EACH CONSTANT BY THE FOURTEEN SCHOOL SYSTEMS

Grade	Art	English	Geography	Health	Home Economics	Industrial Arts	Mathematics	Music	Science	Social Studies
7	82.9	303.6	155.6	150.3	180.0	175.8	238.1	70.0	132.0	245.0
8	85.0	269.5	120.3	152.6	131.3	169.0	241.4	67.6	178.3	239.5
9	120.0	265.7	.....	151.2	283.3	183.0	298.3	73.4	195.0	172.1

a week devoted to the constants in Grades 7, 8, and 9 in the fourteen centers investigated. Table IX shows the average proportional allotment of the school week to the constants. It should be noted that the figures in Tables VIII and IX are based on the positive cases only. For example, in Table IX the figure 11.5 which is given for industrial arts in the ninth grade is derived from the reports of five centers which include this subject among the constants. In order that the reader may properly interpret Tables VIII and IX, Table X is added, showing for each subject and grade the number of positive cases.

[1] "Present Curriculum Practices in the Junior High School," *The Elementary School Curriculum*, pp. 227–42. Second Yearbook of the Department of Superintendence. Washington: Department of Superintendence of the National Education Association, 1924.

Table X shows that practice is by no means standardized. It is obvious that certain practices, as, for example, the inclusion of English in every grade, are general. On the other hand, the inclusion of home economics and industrial arts in the ninth year must be described as a tendency rather than as an established practice. Wherever variations appear, it may be said that the schools are experimenting with the curriculum. Experimentation should undoubtedly be encouraged as the best

TABLE IX

AVERAGE PROPORTIONAL ALLOTMENT OF THE SCHOOL WEEK TO THE CONSTANTS OF THE CURRICULUM IN THE FOURTEEN SCHOOL SYSTEMS

Grade	Art	English	Geography	Health	Home Economics	Industrial Arts	Mathematics	Music	Science	Social Studies
7.....	5.3	19.0	9.8	9.3	11.0	10.4	14.8	4.3	7.9	15.2
8.....	5.3	16.3	7.4	9.1	8.0	9.9	14.3	4.0	10.6	14.3
9.....	7.6	16.5	.....	9.4	14.7	11.5	18.3	4.4	11.7	10.6

TABLE X

NUMBER OF CENTERS WHICH INCLUDE EACH CONSTANT IN THE CURRICULUM OF EACH YEAR

Grade	Art	English	Geography	Health	Home Economics	Industrial Arts	Mathematics	Music	Science	Social Studies
7.....	12	14	10*	14	11	12	14	13	6	14
8†.....	10	11	3*	11	9	10	11	11	7	11
9.....	4	14	0	12	3	5	9‡	9	3	7

* Geography is part of a composite course in the social studies in the seventh and eighth grades of two of the school systems.

† Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

‡ Five centers offer an option of two or more courses in mathematics in the ninth year; some course in mathematics, however, is a part of the core curriculum of the ninth year in all of the school systems.

method of arriving at permanent and wholesome solutions of the problems of curriculum organization.

The appearance of practical subjects in so many of the new curriculums is notable evidence that there is a strong tendency to shift practice from the traditional emphasis on exclusively cultural and disciplinary training to emphasis on training which has practical social value.

Table X can easily be misinterpreted. When one finds that there are only three centers which require home economics in the ninth grade, one can think of the matter in either positive or negative terms. One can say that there is a deficiency in this case in eleven centers, or one can

say that the curriculum has been enriched in three centers. The latter is the true method of describing the situation if we think of earlier practice as the basis of comparison. So also in art, industrial arts, and music, and to some degree in science. Wherever these subjects appear, they represent a change from earlier practice in a positive direction.

Table XI contrasts the minimum offerings with the maximum in the different centers. It is evident from this table that the American curriculum is not in a settled condition. While this table presents the facts for the junior high school grades, it may be remarked that this is not the only section of the school where variations appear. The facts reported elsewhere in this monograph show that there are similar varia-

TABLE XI

VARIATIONS IN PRACTICE

Grade	Art	English	Geography	Health	Home Economics	Industrial Arts	Mathematics	Music	Science	Social Studies
	Difference between the Highest and the Lowest Time Allotments in Minutes a Week									
7	160	220	194	240	240	240	150	55	110	125
8	160	235	124	248	148	215	120	45	140	125
9	140	220	.....	260	430	105	250	59	120	245
	Difference between the Highest and the Lowest Percentage Distributions									
7	12.4	17.0	14.7	13.4	12.7	12.7	10.9	3.4	6.6	10.0
8	12.7	20.1	9.8	13.4	11.5	11.4	4.6	3.4	9.8	10.1
9	11.5	19.0	.....	17.6	20.8	8.9	17.5	3.9	8.3	13.9

tions in the fifth and sixth grades, and it is safe to infer that above the ninth grade and below the fifth grade equally striking variations would be found if investigations were made.

Table XII is a hypothetical table introduced to show tendencies. It is made up on the assumption that the weekly program is composed of thirty periods of sixty minutes each and that these periods are distributed in accordance with the percentages reported in Table IX. If the electives and the extra-curricular activities were included, the figures would be modified, but the general tendencies would appear as in this table.

The general situation which is revealed by all of the facts reported is one of vigorous experimentation. Universally accepted objectives are apparently not available. There is a shift of emphasis from the purely disciplinary subjects toward the practical subjects.

Experimentation and consequent variation in practice are promising if they lead ultimately to the adoption of scientific methods of formulating the curriculum. Everywhere we find that junior high school teachers are at work in committees, as are elementary-school teachers and high-school teachers, trying to reformulate the curriculum. Experts are also being invited to co-operate with members of school faculties. The efforts of all of these workers will be effective only when scientific principles are discovered which can guide in curriculum-making. The principles needed can be arrived at only through an analysis of practical social needs. If we can find out what people need in order to be successful in life, we can use this knowledge in formulating courses which shall supply the required training.

After objectives have been defined as a result of a study of practical needs, the next step consists in collecting and arranging the materials of instruction which will realize these objectives.

TABLE XII

AVERAGE NUMBER OF PERIODS A WEEK ALLOTTED TO CONSTANTS

Grade	Art	English	Geography	Health	Home Economics	Industrial Arts	Mathematics	Music	Science	Social Studies
7	1.5	5.3	2.8	2.6	3.1	2.9	4.1	1.2	2.2	4.3
8	1.6	4.9	2.2	2.8	2.4	3.0	4.4	1.2	3.2	4.3
9	2.2	4.7	.....	2.7	4.2	3.3	5.2	1.3	3.4	3.0

The materials used in the schools at present are in many cases derived from the social, industrial, and economic conditions of fifty years ago. They must be revised in the light of modern needs. To this end we find many school systems bringing in experts in the same way that business organizations and communities are importing experts to survey their activities and modernize their methods. The time seems ripe for a united effort on the part of all of the agencies which are working in different parts of the country on curriculum reconstruction. A general national canvass of curriculum problems in a co-operative way is the next step which should be advocated.

There are certain indications which appear vaguely in the tables which have been presented and which will become much clearer in later chapters where details are reported regarding the subdivisions of the subjects and the emphasis which is given them in the curriculum. These indications are that the new curriculum will aim, in the first place, to give pupils a variety of experiences and, in the second place, to give them

continuity of training. The principles of variety and continuity have been clearly pointed out by such writers as Briggs.[1]

The first decade and a half of the junior high school movement has been devoted largely to the introduction of courses which shall give breadth and variety to the pupil's experience. The term which has frequently been employed to describe the aim of the junior high school program is the term "exploration." Exploratory courses, which are introduced into the curriculum for the purpose of finding out what a pupil's interests and aptitudes are, have been widely cultivated. As a result, courses on vocations, general courses in science covering great ranges of materials, and general courses in commercial subjects, languages, and social subjects have been developed.

Conspicuous among the new courses is the general mathematics course which includes arithmetic, algebra, and geometry. This kind of a course is broad in its contents and has the virtue of uniting the elements of a course such as was formerly given in the seventh grade with elements of high-school courses. The development of such a composite course usually passes through two stages: in the first stage the parts are loosely united; in the second stage the elements are unified and fused into a well-organized systematic course.

For the development and administration of such courses there is need of specially trained teachers. Until teachers can be provided through the co-operation of teacher-training institutions and extension courses and other devices which will tend to improve teachers in service the reconstruction of the curriculum will proceed haltingly.

The development of general courses in fields other than mathematics goes on apace. General science and general courses in the practical arts, in social science, in English, and in health education are becoming common.

Along with the variety which has come through the enrichment of the core curriculum and the development of general courses there must be emphasis on continuity if the junior high school is to administer a unified and well-integrated curriculum.

Table X shows that the principle of continuity does not dominate present practices. Until the principle is more generally adopted than it appears to be in the fourteen centers, which admittedly are representative of the country's best practice, the integration of the junior high school is retarded to a degree which jeopardizes the very existence of the institu-

[1] Thomas H. Briggs, *The Junior High School*, pp. 159–61. Boston: Houghton Mifflin Co., 1920.

tion. The present lack of continuity in the junior high school core curriculum is evident even on casual observation. Table X shows that art (drawing, applied art, design, etc.) is continued as a constant in the ninth-year curriculum of only four centers, home economics in three centers, industrial arts in five, music in nine, and science in three. Even social studies appears as a constant in the ninth year of only seven centers, exactly one-half of the fourteen centers.

English, mathematics, and health are the units of instruction upon which at present is thrown the burden of integrating the core curriculum of the ninth year with the core curriculums of the seventh and eighth years. The abrupt change in required subjects of study for students passing from the eighth year to the ninth year which was characteristic of the school in former years still persists to some degree. The practice runs counter to the demand which the junior high school aims to meet for an educational unit providing a gradual transition from the elementary school to the high school. So long as conditions unfavorable to the fulfilment of the primary functions of the junior high school are permitted to control development, the junior high school cannot achieve its mission.

In the presence of these facts the question arises, Why is there so sharp a break between the eighth and the ninth years? The answer to this question is not far to seek. Tradition and the domination of the high school by college-entrance requirements are the conditions which prevent the ninth year from becoming in full measure a part of the junior high school. There can be no doubt that the present lines of demarcation between the seventh and eighth years and the ninth year must be eliminated to the end that the junior high school may become a self-contained, integrated institution and thus become an effective agency for the promotion of curriculum reconstruction, a fundamental aim in its adoption.

There can be only one college-preparatory unit in the public school system. This has been the senior high school, and this school must continue to be the sole agency responsible for accrediting pupils to the higher institutions. Modifications in its organization, consequent to the 6-3-3 plan, have been accepted by the senior high school itself and should in turn be accepted by the higher institutions. The ability of applicants for college admission to complete a senior high school curriculum of the tenth, eleventh, and twelfth years should be positive proof to college-entrance boards that the pupils have successfully completed the propaedeutic junior high school curriculum. The present situation can be materially simplified for the colleges if they will restrict accrediting relations to the senior high school.

Much of the present confusion and irritation between junior and senior high schools will be removed when the senior high school is not obliged to certify the work of the ninth year. The responsibility for the ninth-year curriculum in 6-3-3 school systems has passed in part and should pass altogether from the senior high school to the junior high school. With the responsibility should also go the opportunity to reconstruct the ninth-year core curriculum in accordance with the reconstruction already initiated in the seventh and eighth years. Insistence by the colleges on sixteen college-entrance units constitutes a condition which threatens the full realization of the principle of continuity in the reconstruction of the junior high school core curriculum.

That a few junior high schools have had the courage of their convictions and have resisted college domination in the reconstruction of the core curriculum of the ninth year is apparent from Table X. The tendency to construct a continuous and articulated core curriculum is unmistakably indicated by even the limited practice of making art, music, home economics, industrial arts, science, and the social studies ninth-year constants. Thus the principle of continuity finds its applications even in spite of opposing conditions. It is the more evident from these cases where the principle has prevailed that conditions which retard the universal application of this principle should not be allowed to exercise their present inhibitory influence.

Finally, the present tendency to modify college-accrediting relations in harmony with the objectives of the new 6-3-3 plan should be promoted and encouraged until the junior high school is able to carry on unhampered the curriculum reorganization already initiated and partly effected in the seventh and eighth years. The junior high school must be free to make of itself a self-contained and integrated unit in the public school system.

Turning from the required subjects to the electives offered in the junior high school curriculum, we find such facts as are reported in Table XIII. A comparison of this table with the earlier tables presented in this chapter will convince the reader that the schools are aiming to accomplish through electives what they cannot fully achieve in the core curriculum. Where it is not possible in the ninth year to continue without interruption the requirements of the eighth year the schools are offering electives which make it possible for at least a part of the pupils to follow the subjects of their choice in the later year.

In some cases the electives serve an additional purpose. Where the core curriculum provides a small amount of work in a given subject a

pupil can take more work in the same subject by adding an elective to the required course.

The advantages thus provided through electives are in many cases so important that they ought to be made a part of the required work of the school rather than be left to the choice of the pupils. Thus an examination of any course of study in home economics planned to cover the period of three years in the junior high school will reveal in the ninth year types of class instruction adapted to the greater maturity of ninth-year girls but impracticable in the earlier years because of the comparative immaturity of seventh- and eighth-year girls. Choice of electives should not be permitted, at least in the junior high school, to determine the proportion of girls who will benefit by training in home

TABLE XIII

NUMBER OF CENTERS WHICH OFFER EACH SUBJECT ELECTIVE IN EACH YEAR

Grade	Art	Commercial Education	English	Home Economics	Industrial Arts	Latin	Mathematics	Modern Languages		Music	Science	Social Studies
								French	Spanish			
7	3	6	1	5	7	4	.....	4	5	13	2	.....
8*	5	10	1	8	9	8	.....	8	5	10	1	.....
9	11	13	2	13	13	14	5	12	8	11	8	10

* Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

economics. The need is common to all girls, since 85 per cent of them are destined to become home-makers.

The comparatively more specialized curriculums of the senior high school are likely to preclude required work in home economics. When, therefore, a junior high school is equipped to do effective work in home economics, no influence should be allowed to limit the realization of the important social and practical results which can be achieved through instruction in home economics in a progressively organized series of courses extending through the core curriculum of the three years.

Similarly, in the case of industrial arts, fine arts, science, and social studies, units of instruction adapted to the maturity of ninth-year pupils should be included as the culminating contributions to the general and common training which it is the function of a core curriculum to supply. Progressive organization of courses demands, first, that the introductory courses be required in the seventh and eighth years and, second, that the finishing courses be required in the ninth year. The introductory

courses have been largely incorporated into the core curriculums of the seventh and eighth years in all of the fourteen centers. But the later courses which round out and complete the progressive organization of required subjects have generally been offered as electives rather than as constants.

The full contribution of a reconstructed core curriculum to pupil training is dependent on the principle of continuity applied in the progressive organization of each required subject. The present administration of electives in the fourteen centers investigated is controlled by a

TABLE XIV

NUMBER OF CENTERS ALLOTTING ONE-FOURTH YEAR, ONE-HALF YEAR, AND ONE YEAR TO EACH ELECTIVE IN EACH GRADE

	Art	Commercial Education	English	Home Economics	Industrial Arts	Latin	Mathematics	Modern Languages		Music	Science	Social Studies
								French	Spanish			
Grade 7:												
¼ year..	1	1	1	2	1	.....	.....	.....	.....	1	1	.....
½ year..	.....	3	.....	2	2	2	.....	1	2	.....	.....	.....
1 year..	2	2	.....	2	5	2	.....	3	3	13	1	.....
Grade 8:*												
¼ year..	1	1	1	2	4	.....	.....	.....	.....	1	.....	.....
½ year..	.....	4	.....	4	2	1	.....	.....	.....	.....	1	.....
1 year..	4	7	.....	4	6	7	.....	8	5	10	.....	.....
Grade 9:												
¼ year..	.....	.....	.....	3	2	.....	.....	.....	.....	.....	.....	1
½ year..	.....	1	.....	6	2	.....	.....	.....	.....	.....	.....	5
1 year..	11	12	2	9	11	14	5	12	8	11	8	6

*Three of the co-operating school systems are organized on the 7-4 plan and do not have the usual eighth year. There are, therefore, only eleven centers reporting for this year.

condition which is not a part of the 6-3-3 plan. The ninth year is not permitted to be the finishing year of the junior high school program of studies but continues to be the initial year of the senior high school program of studies.

Table XIV shows certain facts with regard to the length and distribution of the courses offered as electives. The difference between the figures in Tables XIII and XIV is accounted for by the fact that some centers offer electives for different portions of the school year in a given subject. The following is a descriptive account of the kinds of courses included under the general headings in Tables XIII and XIV. The figures following the names of the courses indicate the number of

the fourteen centers which offer the respective courses in the given year. Further details as to the length of the courses in weeks and the aggregate number of minutes a week will be given in a subsequent chapter.

Commercial education.—Seventh year: business arithmetic, 2; business forms, 1; business writing, 2; stenography, 1; typewriting, 6. Eighth year: bookkeeping, 2; business arithmetic, 2; business practice, 3; business writing, 2; commercial geography, 1; elements of business, 1; stenography, 1; typewriting, 8. Ninth year: bookkeeping, 10; business writing and spelling, 5; commercial arithmetic, 4; commercial geography, 1; first lessons in business and office practice, 2; stenography, 4; typewriting, 9.

Home economics.—Seventh year: clothing, 4; foods, 4; home and family, 2; textiles, 1. Eighth year: clothing, 8; foods, 7; home and family, 4; millinery, 2; textiles, 1. Ninth year: clothing, 13; foods, 10; home and family, 7; millinery, 2; textiles, 1.

Industrial arts.—Seventh year: cafeteria, 1; general shop, 1; mechanical drawing, 2; metal-work, 2; printing, 3; reed work, 1; woodwork, 4. Eighth year: art needle-work, 1; auto mechanics, 2; bookbinding, 1; cafeteria, 1; commercial art, 1; drafting, 1; electricity, 7; forge, 1; home mechanics, 2; machine shop, 2; mechanical drawing, 4; metal-work, 4; printing, 8; reed work, 1; wood-finishing and sign-painting, 1; wood-turning, 1; woodwork, 4. Ninth year: art needle-work, 1; auto mechanics, 1; cabinet-making, 2; cafeteria, 1; commercial art, 1; drafting, 2; electricity, 4; forge, 1; home mechanics, 2; machine shop, 3; mechanical drawing, 10; metal-work, 5; pattern-making, 2; printing, 6; reed work, 1; wood-finishing and sign-painting, 1; wood-turning, 1; woodwork, 10.

Science.—Seventh year: elementary natural science, 1; general science, 1. Eighth year: elementary physical science, 1. Ninth year: botany, 1; general biology, 1; general science, 7; physiology, 1.

Social studies.—Ninth year: ancient history and Greek history, 3; citizenship, 1; community civics, 2; current events, 1; current world history, 1; economic civics, 2; European history, 2; international relations, 1; political civics, 1; Roman history, 1; vocational civics, 2.

It seems proper to offer a suggested program for the reconstruction of the curriculum of Grades 7, 8, and 9 in the light of tendencies and needs as revealed by present practices. As has been previously stated in this chapter, the principle of variety has been fully recognized in the reconstruction of the junior high school program of studies. It has produced general courses for exploratory purposes in the seventh and

eighth years, and it has developed a system of differentiation in the eighth and ninth years which is today adequate to supply greater flexibility in curriculum choices. Electives should not be offered as substitutes for desirable constants; they should supplement required courses by providing fuller opportunity to specialize. There should be both required courses and elective courses for the ninth year in industrial arts, home economics, music, and art—the former to complete the progressive development of the arts courses in the general training of all pupils, the latter to fill the needs of the pupils who elect to specialize in the arts.

Science and social studies should be included with English, mathematics, and health as constants in all three years. There are, therefore,

TABLE XV

ARTICULATION OF THE PROGRAMS OF SOCIAL ACTIVITIES AND GUIDANCE WITH THE SIX GENERAL UNITS IN THE CONSTRUCTION OF A CONTINUOUS AND PROGRESSIVE CORE CURRICULUM IN THE SEVENTH, EIGHTH, AND NINTH YEARS

Health	Social activities
English	
General mathematics	
Social studies	
Natural science	Guidance
Fine and practical arts	

six general constants in the program of studies, each of which should be given throughout the seventh, eighth, and ninth years, namely, English, mathematics, science, social studies, health, and fine and practical arts.

There remain in the program of studies the electives of foreign languages, commercial education, and vocational courses. Space does not permit a discussion of these electives at this point; a full statement will be given in a later chapter. Tables XV, XVI, and XVII, which were included in a report to the National Council of Education at the Cleveland meeting of the Department of Superintendence in February, 1923, will indicate the probable reconstruction of the junior high school program of studies. This report was published in part in the *School Review*.[1]

[1] James M. Glass, "The Reorganization of the Seventh, Eighth, and Ninth Grades—Program of Studies," *School Review*, XXXI (September, 1923), 518–32.

TABLE XVI

THE SIX CONSTANTS, ARTICULATED PROGRAMS OF SOCIAL ACTIVITIES AND GUIDANCE, AND ELECTIVES DISTRIBUTED IN A WEEKLY SCHEDULE OF THIRTY ONE-CLOCK-HOUR PERIODS

Prior to Initial Electives*		Periods	Following Initial Electives	
		1		
Health	3	2	Health	3
		3		
		4		
		5	English	4
English	5	6		
		7		
		8		
		9	General mathematics	4
		10		
General mathematics	5	11		
		12		
		13	Social studies	4
		14		
Social studies	4	15		
		16		
		17	Science	3
		18		
		19		
Natural science and geography	4	20	Fine and practical arts†	4
		21		
		22		
		23		
Fine and practical arts†	5	24	Social activities	3
		25		
		26		
		27		
Social activities	3	28	Elective	5
		29		
Guidance	1	30		

* The period prior to the selection of electives is most frequently the seventh year; the period following includes the eighth and ninth years. It is the writer's judgment that the two periods should each comprise three semesters or one and one-half years.

† Art, music, industrial arts, and home economics.

TABLE XVII

ELECTIVES

Curriculum	Elective Courses*	
	Eighth Year or Second Semester of Eighth Year	Ninth Year
Academic	Foreign language	Foreign language
Fine arts	Art or music	Art or music
Technical (engineering courses)	Shopwork or home economics	Shopwork or home economics
Commercial	Junior business training	Junior business training Typewriting Bookkeeping
Vocational (trade courses)	Vocational industrial or household arts —half time	Vocational industrial or household arts —half time

* Five periods a week for each elective or group of electives except in the case of the vocational curriculum, which on the Smith-Hughes basis requires one-half of the school day, that is, three hours a day.

CHAPTER IV

THE CORE CURRICULUM

This chapter reports the length of the school day and the time allotted to the constants of the curriculum in Grades 5, 6, 7, 8, and 9 in the school systems co-operating in this investigation.

The fourteen school systems participating in the investigation are variously organized. Ten are organized on the 6-3-3 plan. Three—Atlanta, Birmingham, and Kansas City—are organized on the 7-4 plan; and one, Okmulgee, on the 6-6 plan.

Table XVIII shows the length of the school day in minutes. The

TABLE XVIII

LENGTH OF SCHOOL DAY IN MINUTES*

City	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Atlanta	330	330	330	X†	330
Berkeley	300	300	330	330	330
Birmingham	300	300	300	X	300
Cleveland	330	330	360	360	360
Decatur	270	285	285	340	340
Denver	300	300	360	360	360
Detroit	360	360	360	360	360
Kansas City	345	345	250‡	X	250‡
Los Angeles	280	280	270	270	270
Okmulgee	345	345	400	400	400
Pittsburgh	340	340	345	345	345
Rochester	345	345	360	360	360
St. Louis	315	315	315	315	315
Somerville	300	300	285	285	285
Highest	360	360	400	400	400
Lowest	270	280	270	270	270
Average	319	320	325	339	329

* Noon recess or luncheon period not included.

† X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

‡ On account of congestion in the secondary schools, the junior high schools of Kansas City have a single session, 12:50 to 5:00 P.M. Because of this fact Kansas City is not recorded as having the shortest school day.

figures representing the longest and the shortest school days are repeated at the end of the table in order to make the contrast as clear as possible. Thus in the fifth grade the school system which has the longest school day is Detroit with 360 minutes; the school system which has the shortest school day is Decatur with 270 minutes.

Some of the reasons for the increase in the length of the elementary-school day become apparent if one studies this table carefully. It is significant that in the junior high school centers the school day in the seventh grade is very commonly longer than the school day in the sixth grade. This fact is undoubtedly due to the effort made in the junior high school to introduce certain new forms of training, such as physical education, gymnasium work, health education, practical arts, and a varied program of social activities. These additions to the curriculum demand time, and the time cannot be secured in the ordinary school program; hence there is a tendency to increase the length of the school day in order to provide the time necessary for these additional activities.

A distinction has also been made in many cases between prepared and unprepared work. It is the judgment of the administrators and teachers in the centers investigated that they can legitimately lengthen the school day where there is an increase in the amount of unprepared work. The net result of the variation in the method of instruction has been, therefore, to increase the length of the school day.

Table XIX gives the number of minutes a week allotted to each required subject or constant. Table XX gives the proportional allotment of the school week to the constants. Table XIX is on an absolute basis, Table XX on a relative basis. The following abbreviations are used in these and later tables to indicate the school systems included in the investigation: Atl. (Atlanta); Ber. (Berkeley); Bir. (Birmingham); Cle. (Cleveland); Dec. (Decatur); Den. (Denver); Det. (Detroit); K.C. (Kansas City); L.A. (Los Angeles); Okm. (Okmulgee); Pit. (Pittsburgh); Roc. (Rochester); St. L. (St. Louis); and Som. (Somerville).

It may be noted again at this point that in computing averages the practice has been adopted throughout this report of averaging only the cases where the subject is actually given. Thus, in the fifth grade there are only eight of the fourteen school systems which give courses in industrial arts; in making up the average, the sum of the various numbers of minutes reported in Table XIX is divided by eight. Furthermore, in reporting the lowest number of minutes devoted to the subject, reference is made only to those cases in which the subject is actually required. It would be legitimate to make up a table in such form as to emphasize the fact that the smallest number of minutes devoted to industrial arts in some of the schools is zero, but the case is clear enough if the positive returns only are referred to in the summary tables.

For the readers who do not care to study the details of Tables XIX and XX, a few general comments are here given, followed by more

TABLE XIX

Number of Minutes a Week Allotted to Constants

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Art:																	
Grade 5	60	90	60	125	80	90	60	30	90	125	80	75	90	60	125	30	79.6
Grade 6	60	90	60	125	100	90	60	30	70	90	80	75	90	60	125	30	77.1
Grade 7	60	100	60	90	50	100	60	E*	210	E	55	75	75	60	210	50	82.9
Grade 8	X†	100	X	90	50	100	60	X	210	E	55	75	50	60	210	50	85.0
Grade 9	.....	E	E	E	E	100	60	E	200	E	E	120	E	.....	200	60	120.0
English:																	
Grade 5	375	475	345	475	225	423	500	460	425	475	470	375	375	420	500	225	415.6
Grade 6	375	475	375	475	225	366	500	445	425	400	445	375	355	420	500	225	404.0
Grade 7	375	200	400	347	320	375	300	250	393	275	275	300	260	180	400	180	303.6
Grade 8	X	200	X	225	320	250	240	X	435	275	220	300	260	240	435	200	269.5
Grade 9	200	200	225	225	300	250	240	250	420	275	275	300	260	300	420	200	265.7
Geography:																	
Grade 5	150	120	125	187	150	185	‡	250	250	62	100	225	120	150	250	62	159.5
Grade 6	150	120	125	200	150	184	‡	300	250	75	100	225	120	150	300	75	165.3
Grade 7	150	.....	60	225	250	125	‡	E	210	56	220	80	§	180	250	56	155.6
Grade 8	X	.....	X	.....	.....	125	‡	X	.....	56	.....	.....	§	180	180	56	120.3
Health:																	
Grade 5	125	150	150	140	175	130	290	160	125	250	280	145	60	260	290	60	174.3
Grade 6	125	150	75	140	175	130	260	160	125	180	280	145	60	230	280	60	159.6
Grade 7	125	200	75	135	150	100	300	125	200	275	120	60	104	135	300	60	150.3
Grade 8	X	200	X	135	102	100	300	X	200	275	120	60	52	135	300	52	152.6
Grade 9	40	200	E‖	90	E¶	100	300	250	200	275	120	60	104	75	300	40	151.2

* E means that electives are offered.

† X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

‡ See social studies.

§ In St. Louis geography is correlated with history and vocational civics in Grades 7, 8, and 9.

Birmingham reports that hygiene is included in general science. An elective in physical education of 225 minutes a week is offered in the first year of the high school.

¶ Decatur reports that hygiene is taught by the home-room teachers, who use a course of study prepared under the direction of the supervisor of health. An elective in hygiene of 100 minutes a week is also offered. A course in home hygiene is offered to ninth-year girls by the school nurse.

TABLE XIX—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Home economics:																	
Grade 5	.....	90	60	.....	.....	75	75	83	75	.....	*	150	.....	60	150	60	83.5
Grade 6	.....	90	60	.....	.....	90	105	165	75	.....	*	150	.....	60	165	60	99.4
Grade 7	†	100	60	180	100	260	300	E	200	E	220	180	260	120	300	60	180.0
Grade 8	X	100	X	180	100	130	120	X	200	E	E	180	52	120	200	52	131.3
Grade 9	E	E	E	E	E	E	120	E	E	550	E	180	E	E	550	120	283.3
Industrial arts:																	
Grade 5	.....	90	60	.....	.....	90	90	180	90	.....	75	75	.....	.....	180	60	93.8
Grade 6	.....	90	60	.....	.....	90	90	180	90	.....	150	75	.....	60	180	60	98.3
Grade 7	†	170	60	225	100	250	300	E	210	275	150	180	130	60	300	60	175.8
Grade 8	X	170	X	270‡	100	125‡	120‡	X	210	275	180‡	180‡	E	60	275	60	169.0
Grade 9	†	E	225	E	E	E	120‡	E	210	E	180‡	180‡	E	E	225	120	183.0
Mathematics:																	
Grade 5	150	200	300	225	125	205	250	250	175	175	150	250	150	250	300	125	203.9
Grade 6	150	200	275	225	125	205	250	250	175	175	150	250	120	250	275	120	200.0
Grade 7	150	200	275	225	250	250	240	250	200	275	275	300	264	180	300	150	238.1
Grade 8	X	200	X	225	250	250	240	X	200	275	275	300	260	180	300	180	241.4
Grade 9§	400	E	450	225	E	250	300	E	200	E	275	300	E	285	450	200	298.3
Music:																	
Grade 5	75	150	70	75	80	97	60	100	60	130	100	100	80	60	150	60	88.4
Grade 6	75	150	70	75	100	102	60	100	60	130	100	100	80	60	150	60	90.1
Grade 7	75	90	70	45	50	52	60	E	80	90	100	60	78	60	100	45	70.0
Grade 8	X	90	X	45	50	52	60	X	80	90	75	90	52	60	90	45	67.6
Grade 9	45	90	E	90	100	52	60	E	E	E	E	60	104	60	104	45	73.4

* The East Street Platoon School reports home economics omitted in the term for which data were supplied.

† Atlanta reorganized its 7-4 system on the 6-3-3 basis in September, 1923, provision being made for practical arts in all of the junior high schools.

‡ The time allotment for industrial arts varies with the different curriculums. The time allotment of the general or academic curriculum is here given.

§ Where an elective is indicated there is an option of several mathematics courses; that is, mathematics is required in each curriculum. Because the time varies in the different curriculums, the time allotment is not given.

TABLE XIX—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Science:																	
Grade 5	90	30	.....	.....	.....	20	.....	.....	90	100	120	.....	.....	30	120	20	68.6
Grade 6	90	30	150	.....	.....	21	.....	.....	90	100	120	.....	30	30	150	21	73.4
Grade 7	90	200	.....	.....	.....	.....	120	.....	*	†	.....	120	130	.....	200	90	132.0
Grade 8	X	200	X	.....	250	.....	120	X	‡	†	120	120	260	.....	260	120	178.3
Grade 9	§	.....	225	E	E	E	120	E	E	E	E	240	E	.....	240	120	195.0
Social studies:																	
Grade 5	.....	150	125	125	150	‖	250	¶	**	150	90	50	75	60	250	50	122.5
Grade 6	225	175	225	125	150	‖	250	¶	**	150	140	50	75	60	250	50	147.7
Grade 7	250	200	275	180	250	250	300	250	210	305	220	300	260	180	305	180	245.0
Grade 8	X	200	X	225	250	250	210	X	294	305	220	240	260	180	305	180	239.5
Grade 9	.....	200	E	E	E	E	300	E	210	55	E	120	260	60	300	55	172.1

* Part of geography.

† Okmulgee offers elementary natural science in the seventh and eighth years as finding and broadening courses; the finding and broadening courses in all subjects are elective.

‡ Part of health.

§ Atlanta gives a required course in general science in the second year of the high school.

‖ Denver reports as follows with regard to the correlation of history and civics with geography: "A close connection is made in the fifth grade between geography and history, topics being assigned for places of historical interest. Civics is given irregularly in the English work of the fifth and sixth grades."

¶ Kansas City reports as follows: "Work in citizenship is done in a Junior Citizens' Club formed in each room. Safety work is done largely through room representatives in a School Safety Council which co-operates with a city organization."

** In Los Angeles, geography, history, and civics are combined into a social science unit which is included in this report under geography.

TABLE XX

PROPORTIONAL ALLOTMENT OF THE SCHOOL WEEK TO CONSTANTS

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Art:																	
Grade 5	3.6	6.0	4.0	7.6	5.9	6.0	3.3	1.7	6.4	7.2	4.7	4.3	5.7	4.0	7.6	1.7	5.0
Grade 6	3.6	6.0	4.0	7.6	7.0	6.0	3.3	1.7	5.0	5.2	4.7	4.3	5.7	4.0	7.6	1.7	4.9
Grade 7	3.6	6.1	4.0	5.0	3.5	5.6	3.3	E*	15.6	E	3.2	4.2	4.8	4.2	15.6	3.2	5.3
Grade 8	X†	6.1	X	5.0	2.9	5.6	3.3	X	15.6	E	3.2	4.2	3.2	4.2	15.6	2.9	5.3
Grade 9	.....	E	E	E	E	5.6	3.3	E	14.8	E	E	6.7	E	.....	14.8	3.3	7.6
English:																	
Grade 5	22.7	31.7	23.0	28.8	16.7	28.2	27.8	26.7	30.4	27.5	27.6	21.7	23.8	28.0	31.7	16.7	26.0
Grade 6	22.7	31.7	25.0	28.8	15.8	24.4	27.8	25.8	30.4	23.2	26.2	21.7	22.5	28.0	31.7	15.8	25.3
Grade 7	22.7	12.1	26.7	19.3	22.5	20.8	16.7	20.0	29.1	13.8	15.9	16.7	16.5	12.6	29.1	12.1	19.0
Grade 8	X	12.1	X	12.5	18.8	13.9	13.3	X	32.2	13.8	12.8	16.7	16.5	16.8	32.2	12.1	16.3
Grade 9	12.1	12.1	15.0	12.5	17.6	13.9	13.3	20.0	31.1	13.8	15.9	16.7	16.5	21.1	31.1	12.1	16.5
Geography:																	
Grade 5	9.1	8.0	8.3	11.3	11.1	12.3	.....	14.5	17.9	3.6	5.9	13.0	7.6	10.0	17.9	3.6	10.2
Grade 6	9.1	8.0	8.3	12.1	10.5	12.3	.....	17.4	17.9	4.3	5.9	13.0	7.6	10.0	17.9	4.3	10.5
Grade 7	9.1	.....	4.0	12.5	17.5	6.9	.....	E	15.5	2.8	12.8	4.4	.....	12.6	17.5	2.8	9.8
Grade 8	X	.....	X	.....	.....	6.9	.....	X	.....	2.8	.....	.....	.....	12.6	12.6	2.8	7.4
Health:																	
Grade 5	7.6	10.0	10.0	8.5	13.0	8.7	16.1	9.3	8.9	14.5	16.5	8.4	3.8	17.3	17.3	3.8	10.9
Grade 6	7.6	10.0	5.0	8.5	12.3	8.7	14.4	9.3	8.9	10.4	16.5	8.4	3.8	15.3	16.5	3.8	9.9
Grade 7	7.6	12.1	5.0	7.5	10.5	5.6	16.7	10.0	14.8	13.8	7.0	3.3	6.6	9.5	16.7	3.3	9.3
Grade 8	X	12.1	X	7.5	6.0	5.6	16.7	X	14.8	13.8	7.0	3.3	3.3	9.5	16.7	3.3	9.1
Grade 9	2.4	12.1	E	5.0	E	5.6	16.7	20.0	14.8	13.8	7.0	3.3	6.6	5.3	20.0	2.4	9.4
Home economics:																	
Grade 5	.....	6.0	4.0	.....	.....	5.0	4.2	4.8	5.4	.....	.....	8.7	.....	4.0	8.7	4.0	5.3
Grade 6	.....	6.0	4.0	.....	.....	6.0	5.8	9.6	5.4	.....	.....	8.7	.....	4.0	9.6	4.0	6.2
Grade 7	.....	6.1	4.0	10.0	7.0	14.4	16.7	E	14.8	E	12.8	10.0	16.5	8.4	16.7	4.0	11.0
Grade 8	X	6.1	X	10.0	5.9	7.2	6.7	X	14.8	E	E	10.0	3.3	8.4	14.8	3.3	8.0
Grade 9	E	E	E	E	E	E	6.7	E	E	27.5	E	10.0	E	E	27.5	6.7	14.7

* E means that electives are offered.

† X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

TABLE XX—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Industrial arts:																	
Grade 5	.....	6.0	4.0	.....	.....	6.0	5.0	10.4	6.4	.....	4.4	4.3	.....	.....	10.4	4.0	5.8
Grade 6	.....	6.0	4.0	.....	.....	6.0	5.0	10.4	6.4	.....	8.8	4.3	.....	4.0	10.4	4.0	6.1
Grade 7	.....	10.3	4.0	12.5	7.0	13.9	16.7	E	15.6	13.8	8.7	10.0	8.3	4.2	16.7	4.0	10.4
Grade 8	X	10.3	X	15.0	5.9	6.9	6.7	X	15.6	13.8	10.4	10.0	E	4.2	15.6	4.2	9.9
Grade 9	.....	E	15.0	E	E	E	6.7	E	15.6	E	10.4	10.0	E	E	15.6	6.7	11.5
Mathematics:																	
Grade 5	9.1	13.3	20.0	13.6	9.3	13.7	13.9	14.5	12.5	10.1	8.8	14.5	9.5	16.6	20.0	8.8	12.8
Grade 6	9.1	13.3	18.3	13.6	8.8	13.7	13.9	14.5	12.5	10.1	8.8	14.5	7.6	16.6	18.3	7.6	12.5
Grade 7	9.1	12.1	18.3	12.5	17.5	13.9	13.3	20.0	14.8	13.8	15.9	16.7	16.8	12.6	20.0	9.1	14.8
Grade 8	X	12.1	X	12.5	14.7	13.9	13.3	X	14.8	13.8	15.9	16.7	16.5	12.6	16.7	12.1	14.3
Grade 9	24.2	E	30.0	12.5	E	13.9	16.7	E	14.8	E	15.9	16.7	E	20.0	30.0	12.5	18.3
Music:																	
Grade 5	4.5	10.0	4.7	4.5	5.9	6.5	3.3	5.8	4.3	7.5	5.9	5.8	5.1	4.0	10.0	3.3	5.6
Grade 6	4.5	10.0	4.7	4.5	7.0	6.8	3.3	5.8	4.3	7.5	5.9	5.8	5.1	4.0	10.0	3.3	5.7
Grade 7	4.5	5.5	4.7	2.5	3.5	2.9	3.3	E	5.9	4.5	5.8	3.3	5.0	4.2	5.9	2.5	4.3
Grade 8	X	5.5	X	2.5	2.9	2.9	3.3	X	5.9	4.5	4.3	5.0	3.3	4.2	5.9	2.5	4.0
Grade 9	2.7	5.5	E	5.0	5.9	2.9	3.3	E	E	E	E	3.3	6.6	4.2	6.6	2.7	4.4
Science:																	
Grade 5	5.5	2.0	.....	.....	.....	1.3	.....	.....	6.4	5.8	7.1	.....	.....	2.0	7.1	1.3	4.3
Grade 6	5.5	2.0	10.0	.....	.....	1.4	.....	.....	6.4	5.8	7.1	.....	1.9	2.0	10.0	1.4	4.7
Grade 7	5.5	12.1	.....	.....	.....	.....	6.7	.....	.....	E	.....	6.7	8.3	.....	12.1	5.5	7.9
Grade 8	X	12.1	X	.....	14.7	.....	6.7	X	.....	E	7.0	6.7	16.5	.....	16.5	6.7	10.6
Grade 9	.....	.....	15.0	E	E	E	6.7	E	E	E	E	13.3	E	.....	15.0	6.7	11.7
Social studies:																	
Grade 5	.....	10.0	8.3	7.6	11.1	.....	13.9	.....	.....	8.7	5.3	2.9	4.8	4.0	13.9	2.9	7.7
Grade 6	13.6	11.7	15.0	7.6	10.5	.....	13.9	.....	.....	8.7	8.2	2.9	4.8	4.0	15.0	2.9	9.2
Grade 7	15.2	12.1	18.3	10.0	17.5	13.9	16.7	20.0	15.6	15.3	12.8	16.7	16.5	12.6	20.0	10.0	15.2
Grade 8	X	12.1	X	12.5	14.7	13.9	11.7	X	21.8	15.3	12.8	13.3	16.5	12.6	21.8	11.7	14.3
Grade 9	.....	12.1	E	E	E	E	16.7	E	15.5	2.8	E	6.7	16.5	4.2	16.7	2.8	10.6

elaborate comments for the subject specialists who are interested in the details of practice.

GENERAL DISCUSSION OF TABLES XIX AND XX

Art.—It will be noted that in each school system the amount of time allotted to art during the fifth and sixth years is approximately uniform. The practices of the seventh, eighth, and ninth years in some instances show a radical departure from the practices of the earlier years. This is especially true of the ninth year where the work is usually elective.

Attention was called in chapter iii to the fact that the junior high school program has, in general, failed to modify to any great extent the practices in the ninth year. The ninth year continues to be the first high-school year, and all of its practices are determined by the demands of the senior high school program rather than by the demands of the junior high school program. It is perfectly evident that the work in art which is carried on in most of these school systems throughout the elementary-school grades is not continued in the junior high school program of the ninth year.

English.—Special attention may be called to the fact that in English, even though it is a universally accepted part of the school program, there is the widest variation. If one notes the maximum and the minimum number of minutes a week allotted to this subject in the seventh grade, one has an extreme illustration of this variation. It can hardly be believed that the same practical results issue from 400 minutes devoted to English in Birmingham and 180 minutes in Somerville. It is possible that the school systems which devote the least time to English have provided substitutes for this subject. Thus it will be noted that Somerville, which has a short English program in the seventh year, has a relatively long program in the years immediately preceding. The probabilities are that in organizing the seventh year the pressure from other subjects has made it seem desirable to the authorities in that school system to curtail for a single year the work in English. There will be given in a later chapter of this report some indication of the particular English subject divisions which are emphasized in the different years. Further explanation of the gross variations in time will be found in the details there presented.

Geography.—Geography has traditionally been excluded from the American high-school program. In Europe one finds geography included as a part of the curriculum of the higher institutions. In America even the eighth grade very seldom includes this subject. The common

practice is to substitute history or some of the social studies for geography, which is usually included in the programs of the lower grades. It will be noted that this practice has gone so far in the case of Detroit as to require an entirely separate treatment of the geography work, and it will be noted also that in Berkeley even the seventh grade does not include regular work in geography. It is not surprising under these conditions to find that the variations in the amount of time given to this subject are extreme. Even though the subject is one of the commonly recognized factors of the elementary-school curriculum, there is wide variation in its contents and in its location in the school in the different centers. That the subject-matter is of general significance is clearly recognized in all of the educational literature of the day, but it is equally clear from the facts presented that there is no agreement as to the extent to which this material is regarded as important or as to its proper location in the school.

Health.—Tables XIX and XX reveal the fact that a relatively large amount of time is being devoted to systematic instruction on health. Much of the work in hygiene and physiology is of a practical sort; much of it, on the other hand, is of a distinctly scientific type. In the latter respect health instruction supplements the sciences. Both laboratory and textbook work are therefore possible.

In nearly all of the centers there is confusion regarding the responsibility for health instruction or, more strictly speaking, for hygiene instruction. This work is being given by health teachers, science teachers, and teachers of the social studies. Certain phases of health instruction may properly be delegated to each of these three groups of teachers. Frequently, however, the practice of delegating to several people the duty of teaching hygiene results in a loss of instructional time because of the lack of clear distinctions in the division of instructional materials. The situation might be more effectively administered if the responsibility for the proper articulation of health teaching by the three groups of teachers were definitely assigned to a health director.

Home economics.—In the case of home economics there appears greater irregularity than in the case of any of the constants previously discussed. Several of the school systems give no work at all in this subject in the lower grades, and the characteristic conservatism of the ninth year appears in very definite form in the fact that home economics is elective rather than required.

Attention should be called to the fact that it is only within recent years that the fifth and sixth grades have included instruction in practical

subjects. The relatively large number of centers reported as having courses in home economics is impressive in spite of the number of school systems which do not include this subject.

Industrial arts.—In the case of industrial arts, as in the case of home economics, there are a number of the school systems which have not introduced the work into the lower grades, and the ninth year includes this type of instruction largely on an elective basis. In many instances this work is for the boys and serves for them the same purpose that home economics does for the girls. If the school systems of the country at large were examined and the figures for the small towns as well as for the large cities were included in this report, there would undoubtedly be much greater variation than is here shown.

The work in industrial arts requires certain accommodations and equipment which are very frequently lacking in small school systems. It should be remembered in general, in studying the figures here presented, that all of the school systems under investigation are exceptionally well equipped. Where they show variation, therefore, in such subjects as industrial arts, it must be recognized that the variations arise from differences in the views of administrators with regard to the educational importance of the subject. It is only here and there that the limitation can be attributed in any wise to lack of equipment or to lack of training on the part of the teachers.

Mathematics.—Under mathematics are included various branches of the mathematical sciences. In the fifth and sixth grades the work is exclusively in arithmetic. In the upper grades there is variation in the subjects of instruction. The seventh and eighth years sometimes include a great deal of arithmetic and sometimes general mathematics. In other instances these years give instruction in algebra and geometry. Especially in those school systems which have adopted the junior high school program is it common for the seventh and eighth years to deal with subjects that were frequently dealt with exclusively in the high school. Later tables will bring out the details of this variation. It will be pointed out, for example, that six centers include intuitive geometry with arithmetic in the seventh year, that two centers in the seventh year and five centers in the eighth year include algebra with arithmetic, and that one center in the eighth year requires algebra and geometry but not arithmetic. The variations, therefore, are not merely variations in the amount of time devoted to mathematics but further variations among the subdivisions of the subject.

The variation in practice in the ninth year of the fourteen centers challenges serious attention. While general mathematics, as has been pointed out, frequently appears in the seventh and eighth years, there is an abrupt abandonment in the ninth year of all of the tendencies toward the reconstruction of mathematics and a return to the course in algebra of the traditional type commonly required for college admission. The net result of such conservatism in the ninth year must be a loss in the gains which have been made by the reconstruction of the program in the years immediately preceding.

Music.—The impressive fact brought out by the time allotments to music is the relatively small amount of time that is given to this subject and the constancy with which it appears in the programs up to the ninth year. There is no great divergence in practice with regard to this subject, simply because it consumes a relatively small part of the programs investigated. It is one of the newer subjects of instruction in the elementary and junior high schools and has apparently not become a strong competitor of any of the traditional subjects.

Science.—The time allotments to science are impressive because of the relatively small amount of required science which has succeeded in establishing itself in the various school systems investigated. It is evident that the movement has not succeeded which a few years ago undertook to introduce nature-study as a constant in elementary-school programs. On the other hand, the evidence is clear that the junior high school now gives promise of adding science to the constants of the programs of study in at least Grades 7, 8, and 9.

Social studies.—It is evident that there is a growing tendency to include social studies in the core curriculums of the seventh and eighth years. Geography is combined in some quarters with the work in social science. The other topics which appear in this group of subjects will be described in detail in connection with later tables. It is not at all uncommon to devote at least one period a week to the study of current events. Civics is sometimes combined with English, and in some instances history has been modified by the introduction of topics other than the traditional topics of the history course.

DETAILED DISCUSSION OF TABLES XIX AND XX

The remaining pages of this chapter will be devoted to a detailed discussion of Tables XIX and XX. It is likely that these details will interest chiefly supervisors and teachers dealing specifically with given subject fields.

An examination of the tables makes it possible for one to discover certain trends in the curriculum of the junior high school. The practices of the elementary school of the older type, that is, the elementary school in the 8-4 plan of school organization, may be taken as the basis of comparison. Wherever a majority of the centers investigated depart from these earlier practices it may be said that the curriculum has been modified and a new practice established. Where less than a majority have adopted a new plan of procedure, it may be said that a tendency appears rather than an established practice. In the discussion which follows it will be pointed out that tendencies are appearing wherever three or more centers have adopted a given plan of organization.

By way of illustration of tendencies we may cite the not infrequent introduction into the core curriculum of the ninth year of such subjects as science and the practical arts. Less than one-half of the centers include these subjects among the constants, but they appear so frequently that it is proper to say that there is a well-established tendency in the direction of their adoption.

Art

There is little variation in the amount of time allotted to art education in the fifth, sixth, seventh, and eighth years. The average for each of the four years is approximately 80 minutes a week. In the ninth year the required art in the four centers which include art among the constants in this year averages two hours a week. Art or drawing is a required subject in the fifth and sixth years of all centers and in the seventh year of twelve of the fourteen centers. In the eighth year art is a required subject in ten of the eleven centers which include an eighth year. It is, however, a required subject in only four of the fourteen centers in the ninth year. There is evident, therefore, a persistence of the former practice of requiring art in the elementary school in Grades 1 to 8 and of making it an elective in the high school. Even the reorganization of the junior high school has not resulted, except in four centers, in carrying art as a required subject into the ninth year. It does, however, appear as an elective in the ninth year in all but two of the ten remaining centers.

There is a difference of approximately one and one-half hours a week between the highest and the lowest time allotments in the fifth and sixth years. The experimental reorganization of the seventh, eighth, and ninth years has resulted in variation in time allotments to the extent of two and two-thirds hours a week in the seventh and eighth years and two and one-third hours a week in the ninth year. There is thus seen

to be wide and variable experimentation with required art work in the junior high school years.

If the principle of continuity of courses of study is to prevail in the junior high school, then art should continue as a constant in the ninth year. Traditional practice, which persists unfortunately in determining the curriculum of the ninth year, should be altered to the end that the ninth year may become an integral part of the junior high school. College-entrance requirements which are based on four years of secondary-school work result in classifying the ninth year as the first year of the high school. The curriculum of the junior high school cannot be determined by college-entrance requirements if the junior high school is to serve the interests of the great majority of its pupils who will not profit by college training.

Art does not appear as a required subject in the ninth year because college-admission requirements will not permit. Integration of courses of study in the junior high school will not be possible until accrediting relations are limited in 6-3-3 school systems to the senior high school. It is significant of a determination to adopt the principle of continuity and integration of courses of study in the junior high school that four school systems continue art as a required subject in the ninth year in spite of uncompromising college-entrance requirements. The alternative of other 6-3-3 systems which cannot provide time allotments for required art is either to offer art as an elective or to include it among the club activities.

English

As would be expected, English is required in each of the fourteen centers in each of the five years covered by the investigation. Also, as would be expected, the time allotments are greater in the elementary-school years than in the junior high school years. The progress from the basal subjects of the elementary school through the enriched curriculums of the intermediate school to the differentiated curriculums and electives of the senior high school should be accompanied by gradually diminishing time allotments to basal subjects and by gradually increasing time allotments to electives. The proper articulation of elementary and secondary courses of study should reveal a gradual transition from exclusively elementary to exclusively secondary education and not the abrupt transition which too frequently characterized the 8-4 organization. The progressively reduced time allotment to English in the fourteen centers from an average of 416 minutes a week in the fifth year to 266 minutes a week in the ninth year is evidence of this gradual transition.

The variation in the fifth year, a difference of almost five hours a week between the highest and the lowest time allotments, is partly balanced by the fact that there is a difference of exactly two hours between the lowest and the next lowest time allotments and by the further fact that in Decatur, which reports the lowest time allotment, there are in the junior high school years time allotments which exceed those of a large majority of the other centers. Virtually the same conditions prevail in the reports of the fifth and sixth years. Decatur reports in a supplementary note that the fifth- and sixth-year classes are divided into two sections, one devoted to recitation and the other to study, and that, therefore, the additional 150 minutes assigned to study should be added to the total time allotment. In other words, all centers actually report 345 or more minutes a week for English in the fifth and sixth years. Conditions with regard to racial inheritance, social environment, and home influence, which control time allotments to English, vary so greatly within different communities in large centers of population that comparisons are unwarranted. The first obligation of each school is to meet the needs for English training presented by its own pupils.

The average weekly time allotment to English is 100 minutes less in the seventh year than in the sixth year and 34 minutes more in the seventh year than in the eighth year. The junior high school provides for less total class time for English than the elementary school, but it counterbalances this reduction by a practice which is not evident in Table XIX, namely, the oral expression and English dramatic work which uniformly characterizes many of the extra-curricular activities—assembly programs, class meetings, debating clubs, dramatic clubs, etc. Practically all extra-curricular activities are supplementary agencies in oral English composition. This is particularly true when the activities are largely controlled and carried on by the pupils.

The proportional allotments of the school week to English vary from 12.1 to 29.1 in the seventh year, from 12.1 to 32.2 in the eighth year, and from 12.1 to 31.1 in the ninth year. However, a reorganization as experimental and as recent as the junior high school should not be expected within a brief period of fifteen years to determine definite time allotments. The variation, furthermore, is about equal to the variation in the elementary years where greater standardization of practice might be expected to prevail.

Geography

Geography is a required subject in both the fifth and the sixth years of all fourteen centers. Detroit has a unified course in social science in

these two grades and could not specify the time allotted to the geography, history, and civics units; the time allotment in this case is included in the time devoted to the social studies. In two centers the course in geography is completed at the end of the sixth year; in seven centers the course is dropped at the close of the seventh year; and in only five centers is geography continued as a required subject into the eighth year. In 64 per cent of the centers, therefore, geography is completed by the end of the seventh year.

Time allotments to geography in the fifth year vary from 62 to 250 minutes a week; in the sixth year, from 75 to 300 minutes; and in the seventh year, from 56 to 250 minutes. There is apparently serious difference of emphasis attached to the work in geography as evidenced by the proportional allotments of school time to the subject. In cases where political geography predominates as the materials of instruction, which is the practice in most centers, a low percentage of time allotment is probably warranted. In cases, however, where the social, industrial, commercial, economic, and scientific values of geography predominate, it is to be questioned whether a larger proportion of time should not be given to the subject. These values have been incorporated in many cases with other required subjects of study—community, vocational, and economic civics; science; and, to some extent, industrial arts—and in some instances with elective subjects—commercial geography, science, and industrial geography.

There is evident in this curriculum practice the necessity of extending the investigation in order to determine the extent to which geography should be merged with other social studies as part of a general social science course and also, so far as its science values are concerned, with courses in natural and general science. The tendency to fuse separate units of instruction into larger and more inclusive general subject units is prevalent, particularly in the junior high school centers. This tendency should be encouraged to the end that the junior high school may more effectively articulate the unassimilated units of instruction which it has inherited from the elementary school and the senior high school. There will continue to be waste of instructional time so long as needless overlapping of subject fields is permitted to continue. Articulation of units of instruction is an important problem of junior high school curriculum practice. In geography particularly there is wide variation in both practice and judgment with regard to the continued isolation of geography work or its articulation with social studies and science.

The average weekly time allotments to geography in the fifth, sixth, and seventh years are practically the same, being 160, 165, and 156 minutes, respectively. In the elementary school the weekly time allotment should probably be divided into daily periods of 30 to 35 minutes each. In the seventh year the weekly time allotment should be apportioned on the basis of daily periods of 30 to 35 minutes each or, in the usual case of six one-clock-hour periods daily, on the basis of three periods a week. In the latter case geography and science would alternate in the schedule of classes, that is, geography three periods a week and science two periods a week.

The question of continuing geography into the eighth year must, as judged from the practice evident in the fourteen centers investigated, be determined by the degree of completeness with which geography is taught in the grades preceding the eighth. The question of eighth-year geography as an isolated subject unit is to be answered partly on the basis of the type of social studies and science courses required in the eighth and ninth years.

Health

All of the fourteen centers include health as a required subject in the fifth, sixth, seventh, and eighth years. The average weekly time allotment is 174 minutes in the fifth year and 160 minutes in the sixth year. Ten centers give the same weekly time allotment to the sixth year that they give to the fifth year. The average weekly time allotment is a little less in the seventh year than in either the sixth year or the eighth year. The difference is too small to warrant any conclusion other than accidental and unavoidable exigencies of schedule-making. Rather, the nearly uniform practice of offering from two and one-half to three hours a week in health throughout the five years covered by the investigation indicates a country-wide determination to increase the proportion of school time allotted to health education. The American school system has already benefited by the experiences of the army in drafting millions of young men previously trained in the public schools.

In the fifth year one center allots 60 minutes a week to health. The next lowest time allotment is 125 minutes a week or twice the minimum allotment. Nine cities give between 125 and 200 minutes a week, and four give over 200 minutes. Approximately the same variation prevails in the sixth year. There are, however, four centers which reduce the weekly time allotment in the sixth year. There is a variation of 230 minutes a week or 13.5 per cent of the school week in the fifth year and of 220 minutes a week or 12.7 per cent of the school week in

the sixth year. The amount of variation, therefore, approximates four hours a week.

The difference in physical-training facilities—gymnasium, playground, and equipment—probably explains to a large degree this widely varied practice. While it is true that the curriculums of the fifth and sixth years are the product of long experience, the condition of variation in these years is comparable to a similar condition prevailing in the junior high school years. The explanation undoubtedly lies in the fact that the time allotment to health has, in general, been increased in recent years. The variation is also explained in part by the fact that the old elementary-school buildings now in use are not equipped for physical education and, on the other hand, by the fact that most of the new elementary-school buildings contain adequate physical-training facilities. Furthermore, the practice of selecting a school site many times the size of the plots on which the old buildings were often constructed has developed within recent years. Playground activities consequently characterize a new trend in elementary education.

In the seventh, eighth, and ninth years there is a difference of four hours or more between the highest and the lowest weekly time allotments. This is equivalent to saying that in the junior high school years one center gives one hour a week and another center gives one hour a day. The average practice is two and one-half hours a week. Inasmuch as the great majority of the junior high schools are equipped with gymnasiums, either the physical-training facilities in some of the present junior high school buildings are wholly inadequate for the pupil enrolment or there is a surprising difference in the evaluation of health education. The latter is not probable in the case of either the elementary school or the junior high school in view of the emphatic lesson taught the public school system by the world-war.

The inference, therefore, seems clear that the variations in practice as revealed by Table XIX are due to the inadequacy of physical-training facilities. No criticism can be directed against school systems which are confronted by inadequate facilities because frequently the inadequacy cannot be corrected on account of old construction. However, serious criticism should be directed against school systems which fail in new building programs to provide gymnasiums, playgrounds, physical-training equipment, and well-trained instructors.

Junior high schools have generally been slow to appreciate the fact that the physiological development of the pubescent or early adolescent age demands an amount of health instruction and physical education

far in excess of that required by either the elementary school or the senior high school. There are, however, among the fourteen centers four centers in which the proportional allotment of the school week to health education is fairly comparable to the proportional allotments to traditional major subjects. The eighth year is selected as typical of the junior high school practice. In Detroit the school time is divided as follows: 16.7 per cent for health, 13.3 per cent for English, 13.3 per cent for mathematics, and 11.7 per cent for social studies; in Los Angeles, 14.8 per cent for health, 32.2 per cent for English, 14.8 per cent for mathematics, and 21.8 per cent for social studies; in Okmulgee, 13.8 per cent for health, 13.8 per cent for English, 13.8 per cent for mathematics, and 15.3 per cent for social studies; and in Berkeley, 12.1 per cent for health, 12.1 per cent for English, 12.1 per cent for mathematics, and 12.1 per cent for social studies.

In these centers, therefore, there is evident a purpose to evaluate health education as a major subject in the core curriculum. The writer was informed by administrators in other centers that health would receive recognition as a major requirement in the junior high school program of studies when the number of rooms set aside for physical training and hygiene instruction could be made equal to the number of rooms provided for other major subjects. Apparently the facilities determine very largely the time allotments in the junior high school years.

Health education, to an extent prevailing in no other major subject except English, is carried into the ninth year as a required subject. In spite of the inhibiting influence of college-admission requirements on the operation of the principle of continuity in other required major subjects, the conviction that health should continue into the ninth year controls the practice in twelve of the fourteen centers. The average weekly time allotment is two and one-half hours a week. Probably the majority of all junior high schools will be compelled to adopt this average until buildings are constructed with large and small gymnasiums, hygiene rooms, swimming pools, and playgrounds adequate for a program in health education of four or five periods a week.

Home Economics

Home economics is a required subject in eight of the fourteen centers in the fifth and sixth years. An additional center requires it in these years but omitted it the semester in which this investigation was made. In five centers home economics is first introduced into the curriculum in the seventh year, in four centers as a required subject and in one center

as an elective. In the ninth year three centers only list home economics as a required subject. The cost of proper building facilities and equipment so frequently controls the introduction of home economics into the elementary school that comparisons between school systems as to conviction in the matter of the educational value of home economics should not be made.

Furthermore, it should be recalled that most of the school systems selected particular elementary schools or junior high schools to participate in the investigation. The schools selected may not offer home economics because of lack of building facilities, but other schools in the same system may include home economics in their curriculums. This condition prevails also in the case of other special or handwork courses, gymnasium work in health education, etc. The investigation could not include all of the schools in the large systems, and for the primary purpose of the investigation—namely, to study typical curriculum practices—a general survey was not necessary.

The amount of variation in time allotments approximates in the fifth and sixth years the respective average time allotments. This pronounced range of variation reveals a surprising difference of opinion as to the amount of time which should be allotted to home economics. Home economics and industrial arts have received, in their comparatively recent introduction into the curriculum, a decidedly varied reception from boards of education and school patrons. Traditional practice and prejudice have surrendered slowly in many communities to the so-called practical arts. It has doubtless been beneficial to the evolution of the practical arts as integral parts of the curriculum that many communities have taken a conservative position in introducing new units of instruction. Furthermore, the practical arts have invariably been first introduced into the secondary schools as experimental units of instruction. Until the experiment has been carefully tested in the higher grades of the school system there is apparently a reluctance to incur the expense involved in equipping an elementary school for practical arts work.

It is significant, however, of an increasing faith in the educational and social values of the practical arts that nine of the fourteen centers include this type of instruction in the fifth and sixth years. It is highly significant that all of the centers[1] include practical arts in the seventh year. In nine of the eleven junior high school centers home economics

[1] Atlanta reorganized its 7-4 system on the 6-3-3 basis in September, 1923, provision being made for practical arts in all of the junior high schools.

is continued as a required subject in the eighth year; in two centers it is offered as an elective. The building and equipping of new and reorganized schools present opportunities for the adoption of home economics as a part of the curriculum. Where conditions of building are favorable to the introduction of the practical arts, there is an encouraging unanimity of judgment as to their educational value.

The variation of practice in continuing practical arts as a required subject into the ninth year is evidence again, as in the case of art education, of the persistence of the traditional separation of the seventh and eighth years from the ninth year. The practice is a concession to college-admission requirements, which unfortunately are allowed to disintegrate courses of study in the junior high school.

The introduction of home economics into the fifth and sixth years must, no doubt, be determined, as it has been, by the financial ability of the community to support it and by the physical plant of the elementary school. The investigation reveals a general consensus of opinion in favor of including home economics in the seventh and eighth years, particularly in junior high schools. The fact that three centers include the home economics course as a required subject in the ninth year demonstrates the practicability of doing so and, at the same time, of meeting the demands of college-entrance requirements now made on ninth-year work. The integration of the junior high school program of studies should be promoted by progressively completing in the ninth year those units of instruction of general educational value which are offered in the seventh and eighth years. The 6-3-3 organization distinctly changes the ninth year from the initial year of the high-school program of studies to the final year of the junior high school program of studies.

Industrial Arts

In eight of the fourteen centers industrial arts, usually manual training or woodwork, is required in the fifth year. In nine centers it is required in the sixth year; in four other centers it is introduced as a required subject in the seventh year. When Atlanta opened its junior high schools in September, 1923, industrial arts was introduced as a required subject into the seventh year. Therefore, in over one-half of the centers industrial arts is a required subject in the fifth and sixth years of the elementary school, and in all of the centers, with one exception,[1] industrial arts is required of all pupils in the seventh year. Indus-

[1] Kansas City, by reason of its one-session plan, is temporarily unable to organize its junior high school curriculum to include practical arts as a required subject.

trial arts continues as a required subject in the eighth year in all 6-3-3 and 6-6 school systems except St. Louis, which offers it as an elective. Five centers complete a progressively organized junior high school course in industrial arts by continuing the required work into the ninth year.

The comments made with regard to the general practice in home economics apply with equal effect to industrial arts.

In the fifth and sixth years the weekly time allotments vary from one hour to three hours. In the seventh and eighth years the weekly time allotments vary from one hour to five hours. This surprising variation has no explanation except the difference in judgment among the centers with regard to the educational value of industrial arts as compared with the other subjects of instruction. Probably in no other subject in the curriculum is there greater difference in the evaluation of educational objectives and results. Industrial arts as a required subject for general educational purposes has come largely as a by-product of the subsidized vocational training so generally adopted since the enactment of the Smith-Hughes Law. The modification of vocational courses for general educational values has not yet developed the type of industrial training which will ultimately be generally accepted. The experimentation must continue until a general shop course, a home mechanics course, an applied science course, or some other type of industrial arts training is evolved which will become generally acceptable as the required unit of instruction. Vocational courses, as is the case in some of the fourteen centers investigated, will remain elective.

The variations in practice shown in Table XIX should occasion no serious alarm. In fact, variation and experimentation should be encouraged so that from wide variation in practice there may ultimately be evolved a solution of the problem of a required industrial arts course and of the problem of a relatively balanced time schedule. Consequently, in the case of industrial arts, as in the case of many other subjects in the curriculum, the present widespread variation in curriculum practice makes it extremely desirable that investigation be continued and carried to the point of curriculum reorganization; the latter must be based on a far more extensive study than has been possible in this investigation. The present report can accomplish little more than reveal the need and point the way.

As was said in the case of home economics, it is significant of a growing faith in the educational value of the practical arts that virtually all of the fourteen centers include the practical arts among the required subjects of the curriculum, particularly in the junior high school years. New

school buildings invariably provide for the housing and equipment of practical arts and offer the opportunity to add practical arts to the curriculum.

The failure to continue industrial arts as a required subject into the ninth year can no doubt be explained by the same conditions which result in cleavage between the seventh and eighth years and the ninth year in art education and home economics.

Where building facilities permit, industrial arts should be introduced into the curriculum of the fifth and sixth years to the extent of not less than one clock-hour and not more than three clock-hours a week. The time distribution should be determined by the demands of other subjects on the time schedule and by local reaction to the educational value of industrial arts.

When the junior high school is relieved of accrediting relations with the colleges, industrial arts should become a continuous and progressive course of study throughout the three years of the junior high school. Meanwhile, industrial arts, in some such general type as household mechanics or general shop, should be made a required subject in the seventh and eighth years and continued as at least an elective in the ninth year. The average time allotment in each of the seventh, eighth, and ninth years approximates three clock-hours a week. The examination of a later table will reveal the division of the time allotment generally adopted in the fourteen centers between shopwork and mechanical drawing.

As an alternative of the general shop course several centers give short optional courses in special type shops in the seventh and eighth years and an elective of a particular special shop or of two or more shops in the ninth year and frequently in the eighth year. This is accepted practice but is possible only in large schools because of the prohibitive expense of special shops.

Mathematics

The average weekly time allotment to mathematics is virtually the same for the fifth year as for the sixth year—an average of 200 minutes or five periods of forty minutes each. The average weekly time allotments for the seventh, eighth, and ninth years show gradually increasing allotments for the seventh and eighth years and an increase of almost an hour from the eighth year to the ninth year.

Mathematics, which is exclusively arithmetic in the fifth and sixth years, is naturally a required subject in these years in all of the fourteen centers. Table XIX reveals a higher degree of uniform practice in

weekly time allotments in this subject for these years than prevails in other major subjects, namely, English, geography, and social studies, and yet the difference between the highest and the lowest weekly time allotments is two and one-half to three hours.

Mathematics, either arithmetic or general mathematics, is a required subject in the seventh and eighth years. The elective in the ninth year of five centers is actually an option of different courses in mathematics in various curriculums. This means that some type of mathematics is required by all centers in the ninth year. The increase in average weekly time allotment of over half an hour between the sixth and seventh years is accounted for in part by the change from exclusive arithmetic to general mathematics in the junior high school and in part by the fact that the school day is usually lengthened in the junior high school.

The variation in time allotments in the fifth and sixth years is 175 and 155 minutes a week, respectively, or 11.2 per cent and 10.7 per cent, respectively, of the school week. These figures compare favorably with the variation in other major subjects of the curriculum, but they reveal at the same time a confusion of practice in curriculum organization and a difference of judgment with regard to relative values for which it is difficult to account. The explanation may be varying standards of achievement, greater time allotments in the grades immediately below the fifth, more efficiently organized courses of study with the elimination of needless units of teaching, more effective drill on fundamental processes, or superior supervision. Whatever the explanation, the need is apparent to continue investigation in order that scientifically determined standards of needs, achievement, materials, and methods may be made available through a comprehensive program of curriculum readjustment. Until such standards are established by a nation-wide investigation and by committees in each subject field in which all school systems will have implicit confidence, the present confusion of curriculum practice and the apparently needless waste of school time and public funds must be expected to continue.

The changes which are being introduced in the curriculum must be made in accordance with the clearly defined purpose of securing more efficient instruction. The process of enrichment of elementary courses of study with introductory or initial secondary courses of study, that is, the articulation of junior and senior high school courses of study into general units of instruction for the junior high school, should result in a corresponding effort toward more effective articulation of elementary-school and junior high school courses. Valuable time might be saved

by both types of articulation for all three units of the 6-3-3 system to the end of increasing the efficiency of the present curriculum in each unit and for the even greater purpose of making possible the introduction of new units of instruction which the shift of recent years from disciplinary to social values in education has rendered so desirable and necessary.

The varied practice in the ninth year of the fourteen centers, shown in the range of time allotments from 200 to 450 minutes a week or a difference of over four hours a week, and the varied practice of a required course or an optional course for the ninth year challenge serious attention. As previously pointed out in connection with other subjects, the persistence of traditional practice in the ninth year invalidates the consistent development of an integrated program of studies for the junior high school. General mathematics has been widely adopted by junior high schools as a required course for the seventh and eighth years. It is, however, abruptly abandoned in the ninth year for an exclusive algebra course largely because of traditional practice and college-entrance requirements. This condition will be remedied, no doubt, in a long period of years, but a consistently administered course of general mathematics in the three years of the junior high school should not be forced to await the slow development that will come with the lapse of time when it can be more rapidly accomplished by a long-needed and inevitable change from a four-year to a three-year college-accrediting standard.

The increase of an average of approximately an hour a week in the ninth year is due, no doubt, to college-entrance requirements in algebra. Apparently no credit can be given for the work in algebra done in the general mathematics course of the eighth year. This is extremely unfortunate since the increase in the time allotments to mathematics and other major subjects in the ninth year results in the elimination from the ninth-year curriculum of the fine and practical arts and of other units of instruction which are introduced into the seventh and eighth years and abruptly abandoned in the ninth year. The lines of cleavage which prevail between the seventh and eighth years and the ninth year, if they are allowed to persist, will result in destroying the unity of the junior high school program of studies. The practice of drawing lines of demarcation between consecutive years of the intermediate unit of the 6-3-3 organization, which is clearly revealed in this investigation, constitutes a serious menace to the evolution and permanence of the junior high school. It is clear that a modification of accrediting relations should be sought between secondary schools and higher institutions.

The average weekly time allotments to arithmetic in the fifth and sixth years is 200 minutes or five forty-minute periods. This allotment conforms to the practice of the majority of the school systems in the country.

The practice of increasing the time allotment of the sixth year by approximately 20 per cent in the seventh and eighth years is evident in Table XIX. Where either a longer school day with directed study periods or a general mathematics course is adopted, a 20 per cent increase of time would seem to be warranted. At least, it has the authorization of average practice in fourteen representative cities.

In the ninth year it may be impossible to avoid another increase of time—an average of almost sixty minutes a week in the fourteen centers—so long as college-admission requirements must be met. It would seem desirable, however, to restrict this practice to college-preparatory classes and to use the extra time in the case of other classes in order to enrich the ninth-year curriculum with the fine and practical arts and other units of instruction which should be continued as required subjects from the eighth year. At a later period of the junior high school movement it may be possible to continue general mathematics into the ninth year and thus by a unit of instruction common to all curriculums meet the present conflicting needs of college-preparatory, commercial, and general or non-college-preparatory groups of ninth-year pupils.

Music

Music is a required subject in all of the fourteen centers in the fifth and sixth years and in all of the centers except one in the seventh and eighth years; in nine of the fourteen centers it continues as a constant into the ninth year. This is strong evidence that music has become a part of the core curriculum of the elementary school and persists as a constant in the program of studies of the junior high school in the seventh and eighth years. Music is continued as a constant into the ninth year in more than twice as many centers as the second of the fine arts group. Art is a required subject in only four of the fourteen centers in the ninth year, while music is a constant in nine. The situation may be indicative of a tendency, which it is to be hoped will continue, to organize progressive courses in the fine arts through the three years of the junior high school.

The cultural and aesthetic values of both of the fine arts have, since the inception of the junior high school, been needed to counteract the general tendency to overemphasize vocational and utilitarian values in the administration of the junior high school program of studies.

While it is probably inevitable that succeeding waves of general interest in particular subjects of the curriculum will characterize educational progress, balance should be sought at all times in the program of studies. It is significant of an effort to preserve balance in the junior high school program of studies that the fourteen centers give as prominent a place to the fine arts as to the practical arts in the administration of the curriculum. The tendency progressively to organize full three-year courses is even greater in the fine arts than in the practical arts. Accordingly, the balance between the fine and the practical arts is being preserved in spite of the widespread stimulation which the practical arts have received in recent years.

The highest weekly time allotment to music is two and one-half times the lowest weekly time allotment in both the fifth and the sixth years. In the junior high school years the highest weekly time allotments are twice the lowest weekly time allotments. The situation is easily explained by those familiar with the supervision of music in the large cities. In distinction from the other subjects of the program of studies, both music and art usually receive attention in the administration of the curriculum in proportion to the type of leadership and the amount of supervisory assistance. An aggressive and progressive supervision of music or art in any system of schools will secure for the fine arts recognition in the time schedule which it is not denied the fine arts deserve but which is far in excess of the time allotment in school systems where conditions do not favor the organization of a large fine arts supervisory staff.

In the junior high schools the practice is well established of departmentalizing the fine arts to the extent of providing specially trained teachers who give their whole time to one junior high school. Generally the fine arts supervisors of the city school system direct the class work. In virtually all of the centers investigated the practice of supervision and of specially trained teachers assigned on full time to one building was found to prevail in both the fine and the practical arts. This type of curriculum administration will ultimately have an important effect in enlarging the traditional and disciplinary values in education by the addition of the aesthetic, vocational, and highly social values of the fine and practical arts.

How to Make a Curriculum,[1] by Franklin Bobbitt, contains much evidence of a tendency to ascertain the social values of all of the subjects

[1] Franklin Bobbitt, *How to Make a Curriculum*. Boston: Houghton Mifflin Co., 1924.

of the curriculum. The socialization of the program of studies is a chief characteristic of curriculum-making today. The problem has been recognized; experiments have been undertaken; and progress is being made, as evidenced by the increase in time allotments and in supervisory and specially trained teaching staffs for the fine and practical arts in virtually all of the fourteen centers and by the extensive and significant study in the socialization of the curriculum made by Bobbitt at Los Angeles. There are many other indications of the same general drift from disciplinary to social values in educational administration. In each of the centers confusion consequent to the fundamental shift in point of view was frankly admitted in some one or more of the subjects of the curriculum.

The problems of readjustment are more than evolutionary; they are almost revolutionary. They warrant the serious attention of any agency which is prepared to contribute to the solution of the many problems of curriculum reorganization so apparent in the varied practices of curriculum administration in the fourteen centers participating in the investigation.

The average time allotment to music in the fifth and sixth years is one and one-half hours a week or approximately 5.5 per cent of the school week. Music is not usually given in daily periods; in only four centers is music given in the daily schedule of classes. The average weekly allotment of ninety minutes suggests three periods a week of thirty minutes each. Administratively, this practice would economically adjust itself to a special music teacher's schedule whose time might be divided among several elementary schools.

The average time allotments in the junior high school years approximate seventy minutes a week. Where special music teachers give their whole time to single junior high schools the distribution of the time is largely determined by the exigencies of the schedule of classes. For example, in the seventh year one center gives three periods a week of 20 minutes each; one gives two periods of 30 minutes each; two give three periods of 30 minutes each; one gives two periods of 40 minutes each; two give one period of 45 minutes; three give one period of 50 minutes; one gives two periods of 50 minutes each; and two centers give one period of 60 minutes. Where sixty-minute periods can be split in a daily schedule of classes, it would seem desirable to divide the total weekly allotment among two or three half-periods of thirty minutes each. The majority of the music teachers in the junior high school centers are favorable to more frequent and shorter music periods. At the same time

most of the art teachers favor the longer period because of the time spent in preparation for class work.

The practice of nine centers in making music a constant throughout the three years of the junior high school gives a majority report in favor of a progressively organized and required course in music.

Science

One-half of the centers include science, that is, nature study, among the required subjects of the fifth year. Two centers introduce science as a required subject in the sixth year. Thus nine centers include science in the elementary curriculum. In one platoon school the science is taught by a special science teacher; in two other school systems the science work is departmentalized with geography.

Science finds a place in the core curriculum of six centers in the seventh year and of seven centers in the eighth year. In the ninth year science is a required subject in three centers and an elective in eight centers. Eleven of the fourteen centers include science in the ninth-year curriculum as a required or elective subject.

Science presents the greatest variation in practice of any major subject of the curriculum. This statement applies to all of the five grades covered by this investigation. There is approximately as wide a variation in the proportional time allotments for science as for any other major subject. Among the subjects which offer large social and practical values to a well-organized curriculum it would appear that science should receive particular recognition from curriculum-makers. Such does not seem to be the case. However, the attempt to bridge the gap in the junior high school between the nature study of the elementary school and the specialized science of the high school is clear evidence not only that curriculum-makers in some centers are aware of the important, if not indispensable, educational value of science in the seventh, eighth, and ninth years but that they are actually creating courses of study adaptable to the junior high school. The writer discovered in practically all of the centers favorable judgment with regard to the introduction of science, that is, natural science, into the core curriculum of the seventh and eighth years and in several cities not at present giving this course a decision to include it in the curriculum when satisfactory courses of study are prepared, suitable textbooks selected, and trained teachers chosen.

Two of the fundamental purposes of the junior high school are stated by Briggs as follows: "To explore by means of material in itself worth

while the interests, aptitudes, and capacities of pupils" and "to reveal to them, by material otherwise justifiable, the possibilities in the major fields of learning."[1] It is difficult to understand how many pupils in the junior high school can be guided intelligently in their choice of differentiated curriculums unless the field of science is revealed to them and their aptitudes are determined for the science electives which characterize some of the advanced curriculums. For the specific purposes of the junior high school, therefore, science seems indispensable as an important factor in the core curriculum in the semesters prior to the offering of electives.

There is, however, an even more vital reason for courses in natural science in the seventh and eighth years. The pupil needs to interpret his personal life—for example, he should learn the importance of personal hygiene and right habits of living. He needs to interpret his home environment—for example, food, sanitation, ventilation, etc. He needs to interpret his social environment—for example, water systems, sewage-disposal, lighting, transportation, etc. He needs to interpret the vast significance of science to everyday life and to American industrial life the development of which is controlled in a large degree by scientific discoveries. The boy and girl of the junior high school age are experiencing their first social and vocational consciousness of a world the well-being and progress of which are controlled by science; they observe examples all around them of the wonders of science; they see the benefits which science has brought to social and individual life; they marvel at the scientific discoveries of their own age; they live in the midst of an industrial expansion based on science which surpasses that of any previous period; and it is no wonder that their eager and inquisitive minds hunger and thirst for a knowledge of science to interpret the phenomena surrounding them.

It is encouraging, therefore, to note the experimentation which is being carried on in adapting science courses to seventh- and eighth-year pupils. It is indicative of a general purpose to add science to the core curriculum of the junior high school that other centers have reached the decision to introduce science when conditions on which they are now working are more favorable. General science is a development of the past decade. It has largely replaced the first-year high-school courses in biology. It has naturally been introduced first into the ninth year where the experimentation has been largely carried on. It is beginning

[1] Thomas H. Briggs, *The Junior High School*, p. 26. Boston: Houghton Mifflin Co., 1920.

to find its way into the curriculums of the seventh and eighth years. It will and should in time become a required major subject in the junior high school program of studies throughout the three years. School systems, at least the fourteen co-operating centers of this investigation, are convinced of the educational value of science in the junior high school program of studies. They will welcome every agency which will promote the more rapid evolution of practicable courses of study and materials of instruction.

The time allotments to nature study in the fifth year in the seven centers which report it as a distinct course of study average approximately two periods a week of thirty-five minutes each. Where conditions are favorable with respect to equipment, room, and properly trained teachers nature study is worthy of a place in the fifth and sixth years.

As rapidly as conditions warrant, science should be made a required subject in the seventh, eighth, and ninth years. In the administrative operation of the schedule of classes geography is a gradually decreasing unit, and science in a corresponding degree becomes a gradually increasing unit. The two subjects can, therefore, be combined as one administrative unit in the schedule of classes. Table XIX shows an average weekly time allotment to science of 132, 178, and 195 minutes in the seventh, eighth, and ninth years, respectively, that is, an average of approximately two, three, and three periods a week, respectively, of sixty minutes each. When college-admission requirements are more reasonably adjusted to the three years of the senior high school, science should become a required subject in the ninth year. Meanwhile, it may be necessary to make general science elective in college-preparatory curriculums, but it should be made a required subject in non-college-preparatory curriculums.

The distinctions of nature study, elementary science, general science, etc., are inherited from the former practice of specialized courses in science. The simple and all-inclusive designation of natural science for all years at least of the elementary and junior high schools is adequate to define this subject of the curriculum. A contribution of incalculable value to this modern age of scientific life and achievement will be made by the junior high school if it succeeds in establishing science as one of the required constants of the program of studies in secondary education.

Social Studies

Twelve centers require social studies in the fifth year; in one center the subject is not reported as part of the required curriculum; one

center reports that the work takes the form of organized social activities. Approximately the same situation prevails in the sixth year with the exception that one center begins required social studies in this year. The average weekly time allotment is approximately two hours in the fifth year and two and one-half hours in the sixth year.

In the seventh and eighth years all of the fourteen centers require social studies. The average weekly time allotment is about four hours, approximately twice the average weekly time allotments in the fifth and sixth years. This large increase in time allotments to social studies in the junior high school is significant of a general appreciation of the outstanding importance of social studies to the intermediate unit of the 6-3-3 organization. The following is quoted from the *School Review:* "The main objectives of the social science group are closely akin to and almost inclusive of the principal objectives of the junior high school and of the basic reasons for the existence of this division of the school system as a distinctive institution."[1] In view of the intrinsic value of the social studies to the junior high school, it is easy to understand why seven of the junior high school centers continue the subject as a constant throughout the three years, and it is difficult to comprehend, even in view of uncompromising college-admission requirements, why six junior high school centers offer social studies as an elective in the ninth year.

In the fifth and sixth years, the time allotments vary from one weekly period of fifty minutes to a daily period of fifty minutes or from fifty minutes to 250 minutes a week. However, the weekly time allotment is 125 minutes or more in the fifth year of six centers and in the sixth year of eight centers. It is encouraging to note even this amount of agreement in the problem of adapting social studies materials to the elementary grades and in the problem of adjusting the time schedule to the demands of units of instruction which in recent years have received new importance. When the time allotments to a major subject in the elementary school in large school systems vary from 3 per cent to 15 per cent of the school week, there is revealed, beyond question, a wide difference of opinion with regard to relative values.

The variation in weekly time allotments in the seventh and eighth years amounts to two hours; that is, the minimum weekly time allotment is three hours and the maximum five hours; the average is four hours. The practice proves conclusively that social studies have been generally adopted as a required major subject in the junior high school program

[1] Seymour I. Stone, "The Social Sciences in the Junior High School," *School Review*, XXX (December, 1922), 769.

of studies for the seventh and eighth years. The same discrepancy in continuing the required major subject into the ninth year is apparent in the case of the social studies as in the case of other subjects of the curriculum. There are, however, seven junior high school centers which include social studies among the constants of the ninth year. The situation reveals a tendency to reduce to a minimum the inhibitory influence of college-entrance requirements on the ninth-year core curriculum.

The common need of all junior high school pupils, whether college preparatory or non-college-preparatory, for a progressively organized course of study in social science does not permit of dispute. The fact that seven centers organize the course in social studies on a progressive basis throughout the three years is indisputable evidence that the practice will become general in the further development of the junior high school program of studies.

The experiment of adapting upper-grade social studies materials to the fifth and sixth years is extensively carried forward by practically all of the fourteen centers. The average weekly time allotment is two hours in the fifth year and two and one-half hours in the sixth year. The classes could be arranged on this average basis by scheduling three periods a week of forty minutes each in the fifth year and four periods a week of forty minutes each in the sixth year. Daily classes could be provided for by scheduling periods of twenty-five minutes in the fifth year and periods of thirty minutes in the sixth year.

The average weekly time allotment in the seventh and eighth years is four hours. In four of the centers which continue social studies as a constant in the ninth year the weekly time allotments are practically the same in the ninth year as in the seventh and eighth years. It would seem desirable in all school systems to require at least three hours or three periods a week in social studies in the ninth year rather than to make the subject an elective, thereby depriving some pupils of valuable units in a progressive course in social studies.

CHAPTER V

ELECTIVE COURSES

The preceding chapter dealt with required subjects. The present chapter will deal with the electives. There are certain subjects which must be discussed both as constants and as electives, namely, art, English, home economics, industrial arts, mathematics, music, science, and social studies.[1] On the other hand, three subject fields, namely, commercial education, Latin, and modern languages, appear only in the present chapter because they are administered solely as elective courses. There are two exceptions to this statement which will be pointed out in later paragraphs; these exceptions arise from the fact that business practice or junior business training and a general language course are administered as constants in the curriculum by one center each. It is to be noted that this exceptional practice constitutes a tendency to enlarge the scope of the core curriculum in the interest of broader opportunities for the exploration of pupils' aptitudes and interests in the junior high school.

Tables XXI and XXII are included in the present chapter. Table XXI gives the allocation of subject electives according to grades, and Table XXII gives the number of minutes a week allotted to the various elective courses in each subject field. Table XXI indicates very clearly the wide divergence of practice with respect to the grade in which the electives are first offered and also with respect to the number of years of the junior high school in which the electives are continuously offered. Table XXII confirms the impression derived from Table XXI and emphasizes two important kinds of variation, namely, variations in the types of elective courses offered and variations in the time allotments.

All of the facts reported in this chapter make it clear that the school of today is departing from the traditional practices of the earlier elementary school and high school. Experiments are evidently being tried on a wide scale for the purpose of determining the grade in which a given course should be administered and for the purpose of trying out the administrative device of offering electives to pupils of junior high

[1] Since the few instances in which geography and health are offered as electives are in reality concessions to the impending reorganization of the social science course or to temporarily inadequate health facilities, these two subjects are not discussed in this chapter.

TABLE XXI

ALLOCATION OF SUBJECT ELECTIVES ACCORDING TO GRADES

	Art	Commercial Education	English	Home Economics	Industrial Arts	Latin	Mathematics	Modern Languages	Music	Science	Social Studies
Atlanta	.....	9	.....	9	.....	9	.....	.....	5, 6, 7	.....	.....
Berkeley	9	7, 8, 9	.....	9	7, 8, 9	9	9	7, 8, 9	5, 6, 7, 8, 9	7	9
Birmingham	7, 9	.....	.....	9	9	9	.....	9	5, 6, 7, 9	.....	9
Cleveland	9	7, 8, 9	.....	7, 8, 9	7, 8, 9	7, 8, 9	.....	7, 8, 9	7, 8, 9	9	9
Decatur	9	9	.....	9	9	9	9	9	5, 6, 7, 8, 9	9	9
Denver	8, 9	7, 8, 9	.....	8, 9	7, 8, 9	7, 8, 9	.....	7, 8, 9	5, 6, 7, 8, 9	9	9
Detroit	.....	8, 9	.....	8, 9	8, 9	8, 9	.....	8, 9	.....	.....	.....
Kansas City	7, 9	9	.....	7, 9	7, 9	7, 9	9	7, 9	5, 6, 7, 9	9	5, 6, 9
Los Angeles	8, 9	7, 8, 9	9	9	7, 8, 9	8, 9	.....	8, 9	5, 6, 7, 8, 9	9	9
Okmulgee	7, 8, 9	7, 8, 9	7, 8, 9	7, 8	7, 8, 9	8, 9	9	.....	7, 8, 9	7, 8, 9	6, 9
Pittsburgh	9	8, 9	.....	8, 9	8, 9	8, 9	.....	8, 9	7, 8, 9	9	9
Rochester	8, 9	8, 9	.....	7, 8, 9	8, 9	8, 9	.....	8, 9	7, 8, 9	.....	.....
St. Louis	8, 9	8, 9	.....	8, 9	8, 9	9	9	9	5, 6, 7, 8	9	.....
Somerville	.....	7, 8, 9	.....	7, 8, 9	7, 9	7, 8, 9	.....	7, 8, 9	7, 8, 9	.....	9

TABLE XXII

NUMBER OF MINUTES A WEEK ALLOTTED TO ELECTIVES*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Art:†														
Grade 7	.....	.....	60	.....	.....	.....	.....	125	.....	275‡	.....	.....	.....	.....
Grade 8	X§	.....	X	.....	.....	100 250	.....	X	210	275‡	.....	120	250	.....
Grade 9	.....	200	90 135	225 450	100	100 250	.....	250	200	275	220	180	250	.....
Commercial education:														
Grade 7:														
Business arithmetic	.....	.....	.....	.....	.....	50‖	.....	.....	.....	.....	.....	.....	.....	180
Business forms	.....	.....	.....	.....	.....	50‖	.....	.....	.....	.....	.....	.....	.....	.....
Business writing (penmanship)	.....	.....	.....	.....	.....	50‖	.....	.....	210‖	.....	.....	.....	.....	.....
Stenography (exposure course)	.....	.....	.....	.....	.....	.....	.....	.....	210‖	.....	.....	.....	.....	.....
Typewriting	.....	200	.....	225‖	.....	260‖	.....	.....	210‖	275‡	.....	.....	.....	60
Grade 8:														
Bookkeeping	X	.....	X	.....	.....	.....	.....	X	210‖	.....	.....	.....	260‖	.....
Business arithmetic	X	.....	X	.....	.....	260‖	.....	X	.....	.....	.....	150	.....	.....
Business practice	X	.....	X	.....	.....	.....	300	X	.....	.....	220	.....	.....	180

* In some cases two electives with widely varying time allotments are offered; in these cases two figures are given. The questionnaires provided for the distribution of the time allotments to the divisions of the subjects. Frequently a period is divided between two or more electives. Consequently a portion of a given period was allotted to each of several electives. In many cases, therefore, the number of minutes given in the table shows no fixed relation to the length of the standard recitation period. The courses are full-year courses unless otherwise indicated.

† The types of elective courses in art were not ordinarily indicated in the reports.

‡ Quarter-year course.

§ X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

‖ Half-year course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Commercial education: Grade 8—*Continued*														
Business practice (required)*	X	.....	X	.....	.....	.....	.....	X	.....	.....	110	.....	.....	.....
Business writing (penmanship)	X	.....	X	.....	.....	.....	.....	X	210	.....	.....	60	.....	.....
Commercial geography	X	.....	X	.....	.....	.....	.....	X	.....	.....	.....	240†	.....	.....
Elements of business	X	.....	X	.....	.....	.....	.....	X	.....	275‡	.....	.....	.....	.....
Stenography (exposure course)	X	.....	X	.....	.....	.....	.....	X	210	.....	.....	.....	.....	.....
Typewriting	X	200	X	225	.....	260†	.....	X	210	.....	220	210†	260†	60
Grade 9:														
Bookkeeping	.....	200	.....	225	.....	260†	240	250	210	.....	220	300	260	300
Business writing (penmanship)	100	.....	.....	.....	.....	.....	.....	.....	210	.....	.....	60	.....	60
Commercial arithmetic	200	.....	.....	.....	250	.....	.....	.....	210	.....	.....	180	.....	.....
Commercial geography	200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
First lessons in business	.....	.....	.....	.....	.....	.....	.....	250	.....	.....	.....	.....	.....	.....
Office practice	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	260	.....
Penmanship and spelling	.....	.....	.....	.....	.....	.....	.....	.....	.....	275	.....	.....	.....	.....
Stenography	.....	200	.....	.....	.....	.....	.....	.....	210	.....	220	.....	260	.....
Typewriting	.....	200	.....	.....	.....	260†	150	250	210	.....	220	180	260	120
English:														
Grade 7:														
Journalism (constructive English)	.....	.....	.....	.....	.....	.....	.....	.....	.....	275‡	.....	.....	.....	.....
Public speaking and expression	.....	.....	.....	.....	.....	.....	.....	.....	.....	275‡	.....	.....	.....	.....
Grade 8:														
Public speaking and expression	X	.....	X	.....	.....	.....	.....	X	.....	275‡	.....	.....	.....	.....

* At the Latimer Junior High School, Pittsburgh, all pupils not electing commercial subjects are required to devote two periods a week during the eighth year to business practice.

† Half-year course. ‡ Quarter-year course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
English—*Continued*														
Grade 9:														
Journalism (constructive English)									84					
Library practice									252					
Oral English									84					
Public speaking and expression										275				
Home economics:														
Grade 7:														
Clothing				450*						275*		270† 360†		180
Foods				450*				125 200		275*				120
Home and family								50‡						60
Textiles												120†		
Grade 8:														
Clothing	X		X	450*		260†	180	X		275†	80 320	270†	156‡	180
Foods	X		X	450*		260†	90	X		275*	80 320		104‡	120
Home and family	X		X				90	X		275*	30 120			60
Millinery	X		X					X			80	90†		
Textiles	X		X					X				120†		
Grade 9:														
Clothing	240§	200	135	180†	250‖	260†	180	200	200**		40 300	270† 360†	156†	150 390
Foods		200		270†	250	260†	90	200†	200††		40 300		104	120 180
Home and family	240‡‡				250§§		90	50	200††		40 150			30 90
Millinery											50 100	90† 180†		
Textiles												120†		

* Quarter-year course.
† Half-year course.
‡ A half-year course is offered in addition to the full-year course.
§ Thirty-two week course.
‖ Thirty-week course.
** Sixteen-week course.
†† Twelve-week course.
‡‡ Four-week course.
§§ Six-week course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Industrial arts:*														
Grade 7:														
Cafeteria	.....	.....	.....	.....	.....	.....	.....	.....	210	.....	.....	.....	.....	.....
General shop	.....	.....	.....	.....	.....	.....	.....	250	.....	.....	.....	.....	.....	.....
Mechanical drawing	.....	.....	.....	.....	.....	.....	.....	.....	210†	275‡	.....	.....	.....	.....
Metal-work (sheet metal)	.....	.....	.....	.....	.....	.....	.....	.....	.....	275‡	.....	.....	.....	60 180
Printing	.....	200	.....	.....	.....	250	.....	.....	210	.....	.....	.....	.....	.....
Reed work	.....	.....	.....	.....	.....	.....	.....	.....	210	.....	.....	.....	.....	.....
Woodwork	.....	.....	.....	360†	.....	.....	.....	.....	210	275‡	.....	.....	.....	60 180
Grade 8:														
Art needle-work	X	.....	X	.....	.....	.....	.....	X	210	.....	.....	.....	.....	.....
Auto mechanics	X	.....	X	.....	.....	.....	360‡	X	.....	.....	.....	.....	.....	.....
Automobile repairing	X	.....	X	.....	.....	.....	.....	X	.....	.....	.....	900	.....	.....
Bookbinding	X	.....	X	360†	.....	.....	.....	X	.....	.....	.....	.....	.....	.....
Cafeteria	X	.....	X	.....	.....	.....	.....	X	210	.....	.....	.....	.....	.....
Commercial art	X	.....	X	.....	.....	.....	.....	X	.....	.....	.....	900	.....	.....
Drafting	X	.....	X	.....	.....	.....	.....	X	.....	.....	.....	900	.....	.....
Electricity	X	200	X	360†	.....	.....	360‡	X	210	275‡	120‡ 240‡	900	.....	.....
Forge	X	.....	X	.....	.....	.....	.....	X	.....	275†	.....	.....	.....	.....
Home mechanics	X	.....	X	.....	.....	260§	.....	X	210	.....	.....	.....	.....	.....
Machine shop	X	.....	X	.....	.....	.....	.....	X	.....	.....	120‡ 240‡	900	.....	.....
Mechanical drawing	X	.....	X	.....	.....	.....	.....	X	210	275‡	180	90 180	.....	.....
Metal-work (sheet metal)	X	.....	X	360†	.....	.....	.....	X	210	.....	120‡ 240‡	360 900	.....	.....
Printing	X	200	X	360†	.....	250	360‡	X	210	275‡	120‡ 240‡	360 900	.....	.....

* Atlanta reorganized its 7-4 system on the 6-3-3 basis in September, 1923, provision being made for practical arts in all of the junior high schools.

† Half-year course. ‡ Quarter-year course. § Thirty-four week course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Industrial arts: Grade 8—*Cont.*														
Reed work	X		X					X	210					
Wood finishing and sign painting	X		X					X			120* 240*			
Wood-turning	X		X			250†		X						
Woodwork	X		X					X	210	275‡	120* 240*		208	
Grade 9:														
Art needle-work									210					
Automobile repairing												900		
Cabinet-making										575		360 900		
Cafeteria									210					
Commercial art												900		
Drafting			900									900		
Electrical theory and shop practice										885				
Electricity									210	1,160	120* 240*	900		
Forge					200‡									
Home mechanics						260			210					
Machine shop			900								120* 240*	900		
Mechanical drawing			225	270	250‡	250†		250	210	575	180	180		360
Metal-work (sheet metal)		200							210		120* 240*		260‡	60 180
Pattern-making							360					360 900		
Printing		200	900			250			210	275	120* 240*			

* Quarter-year course. † Four-week course. ‡ Half-year course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Industrial arts: Grade 9—*Cont.*														
Printing science										275				
Reed work									210					
Typography										085				
Wood finishing and sign painting											120* 240*			
Wood-turning						250†								
Woodwork		200	225	450	300‡	250§		250	210		120* 240*		260‡	60 180
Latin:														
Grade 7				225‡		250‡		250						240
Grade 8	X		X	225		250	300	X	275	275‡	250	150		240
Grade 9	200	200	225	225	250	250	300	250	275	275	250	300	200	300
Mathematics:														
Grade 9:														
Algebra		200			250			250		275			200	
General mathematics										275			200	
Modern languages:														
French:														
Grade 7		200		225‡		250								240
Grade 8	X	200	X	225		250	275	X	200		220 275	150		240
Grade 9	‖	200	225	225	250	250	275	250	200	**	275	300	200	300
Spanish:														
Grade 7		200		225‡		250‡		225						240
Grade 8	X	200	X	225		250		X	200					240
Grade 9		200	225	225		250		225	200	**			200	300

* Quarter-year course. † Eight-week course. ‡ Half-year course. § Thirty-four week course.

‖ Atlanta offers an elective in French in the second year of the high school.

** Okmulgee reports as follows: "Modern languages are begun in the tenth year; however, a few ninth-grade students are permitted to elect a modern language if they show sufficient interest and ability. We would recommend that modern languages be begun in the eighth grade as finding and broadening courses and that regular courses be begun in the ninth grade."

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Music:														
Grade 5:														
Band			30											
Chorus						30								
Instrumental	60	20	120		30*			60					45	
Music appreciation													45	
Orchestra		60	30			30		60	60 90				45	
Grade 6:														
Band			75											
Chorus			45			30								
Instrumental	60	20			30*			60					45	
Music appreciation													45	
Orchestra		60	75			30		60	60 90				45	
Grade 7:														
Band		80	30									120		
Boys' and girls' glee clubs											50			
General course								75						
Instrumental	60	20	120							55 275	50	180	45	
Music appreciation								50		275†			45	
Orchestra		80	30	90	50	100		125	120	55 275	250	120	45	60
Grade 8:														
Band	X	80	X					X				120		
Boys' and girls' glee clubs	X		X		50			X			50			
Chorus	X		X					X			250			
Instrumental	X	20	X					X		55 275	50		45	
Music appreciation	X		X					X		275†			45	
Orchestra	X	80	X	90	50	100 150		X	120	55 275	250	120	45	60

* Thirty-week course † Quarter-year course

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Music—*Continued*														
Grade 9:														
Band		80	30									120		
Boys' and girls' glee clubs					50	50					50			
Chorus			120			75					50			
General course								200	80					
Harmony		80	135								200			
Instrumental		20	90								50			
Instrumental, specialized technique, and harmony										275				
Music appreciation			90					50						
Orchestra		80	30	90	50	156		125	120		250	120		60
Specialized technique		20	60											
Voice interpretation			135							55				
										275				
Science:														
Grade 7:														
Elementary natural science										275*				
General science		200												
Grade 8:														
Elementary physical science	X		X					X		275†				
Grade 9:														
Botany													260	
General biology					250									
General science				225		250		250	200	385	240		260	
Physiology													260	
Social studies:														
Grade 5:														
Citizenship								45‡						
History								75†						

* Quarter-year course. † Half-year course. ‡ Thirty-week course.

TABLE XXII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Social studies—*Continued*														
Grade 6:														
Citizenship								45*						
Civics										55†				
History								60‡						
Grade 9:														
Ancient history and Greek history						250†			210					180
Citizenship								250						
Community civics			225		250†									
Current events											55†			
Current world history										250				
Economic civics					250§						165†			
European history		200†			250									
International relations				225†										
Political civics									210					
Roman history						250†								
Vocational civics					250‖						165†			

* Thirty-week course. ‡ Thirty-one week course. § Thirteen-week course. ‖ Six-week course.
† Half-year course.

school age. Such experimentation is justified by the fact that there are no accepted standards. Modifications of the curriculum must therefore be made on the basis of accumulated experience.

Electives may be offered for one or both of two perfectly defensible purposes. One purpose is to increase the opportunities of pupils with high intelligence quotients who are prepared to carry more work than is provided by the core curriculum and who prove this by passing achievement tests from time to time. For such bright pupils elective courses as early as the seventh year may be warranted.

A second purpose served by electives is to provide for early specialization. Pupils in the junior high school whose aptitudes and interests have been demonstrated, through previously required exploratory courses, to be in definitely determined directions, can, through elective courses, begin to settle down to continuous work of the type which they will follow through the senior high school. If the main purpose of electives is to furnish opportunities for specialization, they should not be offered until the eighth or ninth year, after the preliminary period of exploration provided in the courses of the seventh year.

The different practices shown to exist in the allocation of electives may be explained by a condition of confusion and a difference of opinion as to the primary purposes of the junior high school. So far as electives are offered because of this uncertainty, they represent a purely temporary administrative device.

Certain comments of value to the general reader will be made with reference to Table XXII, which reports the facts regarding elective courses. These will be followed by comments on details which probably will be of interest only to special teachers and supervisors.

GENERAL DISCUSSION OF TABLE XXII

Art and music.—Short courses in music and art are offered as club electives through the three years of the junior high school. This practice makes the electives part of the social activities program and serves both to explore aptitudes on the part of the pupils for the fine arts and to provide additional art and music courses for the pupils who have pronounced interests in these subjects. The virtue of the practice is that it may be administered without serious sacrifice to the subjects of the core curriculum.

In a few centers there is clearly a tendency to offer fine arts electives to such an extent as to make art and music major subjects. This practice will in time develop a fine arts curriculum parallel to the foreign

language curriculum, the commercial curriculum, the industrial arts curriculum, and the home economics curriculum. If vocational opportunities for pupils trained in art and music develop to a sufficient extent to offer a livelihood to specialists in these fields, then this tendency is fully warranted. Certainly the tendency is clearly an application of the principle of the equalization of educational opportunities. The investigation revealed the existence in some quarters of the opinion that vocational opportunities exist in the fine arts and that the development of a fine arts curriculum should, as a consequence, be accelerated.

Commercial education.—An examination of the commercial electives shown in Table XXII leaves on one's mind the vivid impression that there is a startling array of commercial courses offered in all three years of the junior high school. The wide range of commercial electives is evidence of the difficult problem of adapting courses in this field to junior high school pupils. Many of the courses now offered in the seventh, eighth, and ninth years are senior high school courses which have been modified only slightly. Clearly the courses which may most effectively initiate commercial education have not been generally determined. In the seventh and eighth years typewriting predominates as the commercial elective. Yet it may be seriously questioned whether typewriting is the best means of initiating commercial education, though no question will arise as to its practicability in the seventh and eighth years. Business practice, business forms, and junior business training are offered as electives in a few centers. Such courses indicate a serious effort to develop initial commercial courses more than does a course in typewriting. It will be noted that Pittsburgh requires business practice for two periods a week during the eighth year as a part of the core curriculum. Thus an exploratory course of worth-while materials may be developed which will assure a general knowledge of common business practice to all pupils and which will help in the selection of those pupils who have special aptitudes for commercial work. By such means it may be possible to eliminate the too frequent and vicious practice on the part of pupils of choosing the commercial curriculum because they do not want to follow the other curriculums which are offered.

Table XXII clearly indicates that commercial education has been widely adopted as a part of the junior high school program of studies. As previously noted, there is considerable uncertainty as to the type of general course which serves best to initiate the commercial curriculum in the grades immediately preceding the ninth year. Bookkeeping and typewriting prevail very largely as the commercial courses in the ninth

year. It may be questioned whether this practice has been determined by custom or whether these two courses have been deliberately adopted as the most desirable commercial courses to succeed the first general course of junior business training or business practice.

The problem of organizing commercial courses is a problem of deciding between two possible policies. Specialized commercial courses in the high school are in some cases adapted to the junior high school. In other cases the effort is made to develop new general courses better suited to younger pupils and more consistent with the fundamental aims of the junior high school. The former procedure is the general practice for the obvious reason that there is a lack of initial commercial courses, while the latter is a tendency slowly revealing itself in the administration of the commercial curriculum.

English.—The significant fact in connection with the English electives is that there are any at all. Such electives are so limited that general comment is unwarranted.

Home economics and industrial arts.—Home economics and industrial arts are grouped together under the designation of practical arts for the purpose of the general discussion of Table XXII. In the latter part of this chapter each is treated separately in greater detail. The evidence is plain in this report that the practical arts have been incorporated into the junior high school program of studies as both required and elective courses.

The required courses in this field serve the double purpose of adding the long-needed practical elements to the core curriculum and of providing exploratory opportunities for determining the educational and vocational choices of two groups of junior high school pupils. The first group is made up of those pupils who will continue their education in the senior high school. The second group is made up of those pupils who are going to leave school because they must make their first vocational choices and enter upon industrial careers during the junior high school period.

The elective courses in the practical arts provide both more complete training than is furnished by the required courses for the group of pupils who will continue their vocational training in the senior high school and full vocational training for the group of pupils who must specialize in occupational courses during the junior high school period prior to their placement in industry.

The elective courses in home economics and industrial arts offer to the pupils who are not going to pursue related courses in the senior high

school opportunity to get training in a certain kind of skill which is very useful and must be taken in these lower grades if taken at all. The specialized non-industrial curriculums which these pupils take up in the senior high school do not permit of practical courses in the later years.

Latin.—Latin has been introduced into the junior high school in imitation of the universal practice of making Latin an elective in secondary education. All fourteen centers include Latin among the ninth-year electives. Table XXII shows that the experiment of offering Latin before the ninth year is being tried in over half of the fourteen school systems. Introductory and orienting courses are to be found in the eighth year and to a limited degree in the seventh year.

In thus introducing Latin at an earlier period than was formerly the custom in American schools, recent practice follows the example of Europe. Those pupils in the European schools who are going to take higher courses universally begin Latin in the years that correspond to the American elementary grades.

The early introduction of Latin courses serves two distinct purposes. It gives those who are going to go on in the subject a start in the lower grades and thus contributes to proficiency in the subject, and it gives all who think that they want Latin an opportunity to try themselves out. Pupils who find that they have no aptitude for the subject can drop out without serious loss of time and without the interference with their senior high school curriculums which often results when pupils make a bad start in Latin in the later years.

Mathematics.—Electives in mathematics are in the nature of optional courses. Some course in mathematics is required in all centers.

Modern languages.—No center of the fourteen co-operating in the investigation includes German among the modern language electives. French clearly maintains here the same rank that it holds in general as an elective in secondary education. Spanish shows large gains in popularity, probably on account of the disappearance of German. Table XXII does not seem to indicate that Spanish is administered today in response to regional demands, as it was most frequently prior to the world-war. It may be that Spanish is now introduced in deference to the former practice of offering two modern languages. If that is the reason for its introduction, there is little justification for the present practice.

The junior high school program of studies is overweighted with foreign language offerings when three languages—Latin, French, and Spanish—are given simultaneously. It would seem preferable to defer one modern language to the senior high school. The junior high school

would then be free to stress other electives of greater relative value to early adolescent pupils—for example, practical arts, fine arts, science, or social studies.

As in the case of Latin, an experiment in developing an introductory and orienting course is being conducted in over half of the fourteen school systems. Special attention is called to the experiment being made at Detroit with a general language course. An outline of the plan is given in connection with the detailed discussion later in the chapter.

Science.—The course in general science as developed in the past ten years is generally adopted in the ninth year of the junior high school. It is administered as a constant in three centers and as an elective in eight. Since the accrediting demands of the colleges imposed on the ninth year prevent in some cases the administration of the general science course as a required subject, the alternative is adopted of offering it as an elective.

In the preceding chapter it was noted that science has been incorporated into the core curriculum of six centers in the seventh year and of seven centers in the eighth year. The tendency, therefore, to make science a constant in the general curriculum is established to this extent. The next logical step is the continuation of the science constant into the ninth year. This consistent organization of a progressive series of science courses through the seventh, eighth, and ninth years is checked, not by a question as to its educational value but by the unfortunate persistence of traditional practice in college admission. Here we see administrative necessity superseding educational objectives in influence. The persistence of the traditional line of demarcation between the eighth and ninth years has no justification, especially when these years are consecutive in the same administrative unit of the public school system.

One of the most significant, and at the same time most threatening, revelations of this investigation is that which is here under discussion. The program of studies in the junior high school is not unified. It suffers a marked breach at the end of the eighth year. In no subject of the curriculum is this more evident than in science. A clearly defined tendency to incorporate science into the core curriculum is revealed, but this tendency is largely checked by conditions which, even if they were justified by an 8-4 type of organization, should be modified as a part of the general acceptance of the 6-3-3 type of school administration.

Social studies.—The administration of the social studies follows very clearly the present tendencies in both elementary and secondary education to adopt a general social science unit of instruction. Many

transitional stages of compromise are revealed between the general social science course and the former isolated courses in history, civics, and geography. This evolutionary development is clearly shown in the types of elective social studies offered, particularly in the ninth year.

The tendency to discard ancient history, Roman history, and European history in the ninth year is shown by the fact that only a limited number of centers continue these electives in the last year of the junior high school. When the almost universal practice of two decades ago of offering ancient history in the first year of the high school is recalled, the present trend toward a social science course of study indicates a clear change in practice.

On social studies falls most heavily the burden of the socialization of the curriculum. Social studies must accordingly be administered in the junior high school and undoubtedly in the senior high school also as required units of instruction rather than be retained as elective courses.

The investigation indicates plainly the types of courses which are today most generally administered in the social studies. Attention is directed to the detailed comments on Table XXII in which the progress is traced from the earlier isolated courses in history, civics, etc., through the present co-ordinate social studies courses, to the slow development of a composite social science course.

DETAILED DISCUSSION OF TABLE XXII

In this chapter, as in chapter iv, a detailed discussion of all of the subjects is given. The teachers and supervisors in each field will in this part of the report find detailed information regarding their subjects. It should be noted that the following comments apply to elective courses, while the corresponding discussion in chapter iv referred to required courses or constants.

Art

Three centers offer electives in art in the seventh year. One of the three centers, Okmulgee, has a finding and broadening course of nine weeks in accordance with its general practice of offering try-out courses in all subjects. Five cities offer art electives in the eighth year. All are for a period of a year except the try-out course at Okmulgee. These five centers continue the art electives into the ninth year.

Full-year electives are offered for the first time in the ninth year by four cities. Electives in art, therefore, are offered by eleven of the fourteen centers and are introduced into the curriculum in the eighth year by four centers and into the curriculum of the ninth year by four centers.

A comparison of Tables XIX and XXII shows that Denver, Los Angeles, and Rochester include in their junior high school curriculums both required and elective courses in art in the eighth and ninth years and that St. Louis offers both in the eighth year.

That the art electives are recognized as equivalent to other electives of the ninth year is evidenced by the fact that seven of the eleven centers require daily periods and one center four periods a week. In these seven centers the time allotments vary from 200 to 450 minutes a week or from 40 to 90 minutes a day. An examination of the electives in music shows that seven centers offer music electives which, if taken in a group, would aggregate daily periods of elective music. The appearance of fine arts electives to the extent of five periods a week indicates that there is being introduced into the junior high school a fine arts curriculum among the other differentiated curriculums of the ninth year. The junior high school, therefore, is making progress in its effort to equalize educational opportunities in providing for the varying needs and aptitudes of its pupils. Table XXII also reveals tendencies, which have persisted over longer periods of experimentation than in the case of the fine arts, to initiate an academic or foreign language curriculum and commercial, technical, and vocational curriculums.

The experiment of extending electives by club organizations in all subjects is practically universal. Clubs are a part of the social activities program of the junior high school movement. A social activities program in some stage of development is characteristic of all of the junior high school systems. The club electives in art offered by the junior high schools participating in this investigation include such suggestive extensions of art education as are indicated in the following list of clubs: art craft clubs—for example, wood, clay, textiles, sheet metal, oil, parchment, enamel, etc.; cartoon and poster clubs; interior decoration clubs—for example, basketry, pottery, lamp shades, stenciling, furniture, and weaving; costume-design clubs; bead-work, scrap-book, block-printing, and art-appreciation clubs.

Art deserves recognition as a required subject for all pupils on account of its aesthetic and social values and as an elective for pupils with aptitudes for art on account of the opportunity which it provides to specialize in art training. The junior high school cannot do less than offer a fine arts curriculum if the principle of individual differences which it accepts in theory is to function in practice. Art electives should receive an allotment of time proportional to the time allotted to the elective subjects in other differentiated curriculums, that is, four to five periods daily

through the elective period of the junior high school, whether this is the eighth and ninth years or half of the eighth year and all of the ninth year or even part of the seventh year and all of the eighth and ninth years.

Commercial Education

Commercial education electives are offered by thirteen centers in one, two, or three years of the junior high school. Berkeley, Cleveland, Denver, Los Angeles, Okmulgee, and Somerville include commercial electives in the three years of the junior high school. Detroit, Pittsburgh, Rochester, and St. Louis offer commercial electives in both the eighth and the ninth years. Atlanta, Decatur, and Kansas City offer electives in only the ninth year. It will be noted that two of the centers giving only ninth-year electives are 7 4 organizations. In the case of the seventh-year electives, most of the courses are restricted to a half-year or less, that is, to the second semester of the seventh year.

From another point of view, commercial courses in the ninth year which are a part of the high-school contribution to the junior high school program of studies are preceded by earlier electives in the seventh year of six centers and in the eighth year of four centers. The commercial electives introduced into the seventh year are typewriting in six centers, business arithmetic in two centers, business writing in two centers, and business forms and stenography in one center each. In comparison with those in the seventh year, the introductory commercial elective courses in the eighth year are far more extensive both in type and in the number of centers offering them. Eight centers offer typewriting in the eighth year; four centers offer business practice or elements of business as defined in the reports or junior business training as defined by some of the recent textbooks; two centers offer business arithmetic; two centers offer bookkeeping; two offer business writing; one center offers commercial geography, and one center stenography.

As has been noted, the seventh-year courses are, for the most part, one semester or less in length, five periods a week.

In the eighth year, typewriting is a full-year subject of five periods a week in three centers, four periods a week in one center, and one period a week in one center. In three other centers typewriting is offered for a half-year, five periods a week. Business practice or junior business training is a full-year course for two, three, four, and five periods a week in three centers, one of which offers two courses; in Okmulgee it is offered as a try-out course of nine weeks, five periods a week. Business arithmetic is offered for five periods a week for a year in one center and for a

half year in one center; bookkeeping is a half-year elective, five periods a week, in the two centers which offer it. Business writing is offered for a full year for five periods a week in one center and for two periods a week in one center. Commercial geography is a half-year elective, four periods a week, in one center. Stenography is offered as an exposure course in the second semester of the seventh year and in the eighth year by Los Angeles, but five periods a week would apparently make it an intensive rather than an exposure course. Incidentally, only three other centers offer stenography in the junior high school, even in the ninth year. Stenography is apparently fast losing the place in the junior high school program of studies which it held ten years ago at the beginning of the junior high school movement.

The problem of adapting commercial courses to eighth-year pupils, and to some extent even to seventh-year pupils, is receiving attention in ten of the fourteen centers. The majority of the junior high schools share, therefore, in a common purpose to adapt commercial electives to grades one or two years earlier than formerly was the practice in the high school. In this problem of adaptation of high-school courses to earlier years several considerations should control experimentation. First, each introductory course should both explore pupils' aptitudes for the course and reveal the possibilities of higher courses in the same subject field. Second, the introductory course should "deal with the simpler aspects, or those of more direct application, in the earlier years and defer the refinements for later years when these can be better appreciated."[1] Third, the first introductory course should be a survey of the subject field rather than a specialized course of the type which prevails in the later years—for example, general mathematics, general science, general social studies, general shop, general home economics, and, in commercial education, elements of business or junior business training.

In the light of these considerations there seems to be little justification in the seventh year for distinct and specialized courses in typewriting or stenography, though the greater facility with which pupils handle typewriting as compared with stenography presents a stronger case for the former. The same considerations raise a question as to the desirability of bookkeeping and stenography in the eighth year. The fact that over one half of the centers give typewriting in the eighth year is evidence of both the desirability and the practicability of this elective in the eighth year.

[1] *Cardinal Principles of Secondary Education*, p. 17. Bureau of Education Bulletin No. 35, 1918.

There is a need in the junior high school for a general introductory and exploratory commercial course for at least the eighth year. Such a course should be evolved and adapted to the eighth year before it is attempted in the seventh year. However, there is a serious question whether any electives should be introduced into the seventh year except practical arts for retarded pupils and foreign languages for gifted pupils. The commercial elective which at present appears to give the greatest promise of supplying the need for an introductory and exploratory course is business practice or elements of business or junior business training. When such a course is evolved, it should probably become a required course for all pupils. It is significant that in Pittsburgh a course in business practice is now required for two periods a week in the eighth year in the case of all pupils not electing commercial subjects.

Commercial education, in addition to its distinctly vocational values, has certain general and practical values for all pupils in secondary education. A course in junior business training should contain those fundamental values of commercial and business practice which are the common need of all pupils irrespective of vocational choice. When such a course is available, it should be offered to all pupils in the latter half of the seventh year or the first half of the eighth year or in both to the extent of two or three periods a week.

The two commercial electives on which chief emphasis is placed in the ninth year are typewriting and bookkeeping. Typewriting in the ninth year is preceded by introductory courses in the seventh and eighth years in seven of the nine centers. Typewriting is offered by one center in the seventh and eighth years and discontinued in the ninth year. Bookkeeping is offered for the first time in the ninth year by eight of the ten centers; in the two remaining centers introductory half-year courses are given in the eighth year. The majority of the junior high school centers, therefore, make typewriting an eighth-year elective and bookkeeping a ninth-year elective. The allotment of time to ninth-year typewriting varies in the nine centers which include the subject in the commercial curriculum; the allotment is a full year of work of five periods a week in five centers, of four periods in one center, of two and one-half periods in one center, and of two periods in one center; one center gives five periods a week for a half-year. This variation in time allotments does not prevail to an equal extent in the case of bookkeeping. Seven of the ten centers give bookkeeping five periods a week for a full year; two centers give four periods a week for a year, and one center gives five periods a week for a half-year.

Business writing appears in the commercial curriculum of the ninth year in four centers as a year subject, for one period a week in one center, for two periods a week in one center, and for five periods a week in two centers; penmanship and spelling are offered by one center for a year, five times a week. Penmanship is, therefore, an elective in five centers. Commercial arithmetic is offered as a full-year subject in four centers, five periods a week in three centers and three periods a week in one center. Stenography is a full-year elective, five periods a week, in four centers. Commercial geography, first lessons in business, and office practice are offered as commercial electives in one center each for a full year, five periods a week.

The administration of the ninth year commercial curriculum in the junior high school shows at present much variation in the types of courses offered and in the allotment of time. The experiment of adapting high-school commercial courses to the junior high school program of studies has probably from necessity taken in its early stages the form of specialized courses transferred as elective units from the senior high school and simplified for junior high school classes. An attempt to fuse commercial courses into a general introductory and exploratory course surveying the commercial curriculum is being made in the courses in business practice and elements of business in four centers in the eighth year and in the courses in first lessons in business and office practice in two centers in the ninth year. This experiment may be followed by other efforts to fuse the commercial work into more general and less highly specialized courses.

The function of the junior high school is to a large degree the determination of the curriculums into which it will sort its pupils. Highly specialized courses characterize the broader differentiation of the senior high school. For the great majority of commercial pupils in the junior high school who will continue their commercial training in the senior high school, a more general and composite course would to a greater degree correspond to the practice of other curriculums. For the minority of junior high school pupils who must seek their vocational placement from the junior high school, the courses in office practice or junior business training, typewriting, and elementary bookkeeping, organized on the basis of making each year's work of value to those who go no farther, that is, on the year unit basis, will give all of the commercial training which those who leave school during the junior high school period can take without too great sacrifice in the case of the core curriculum of health, English, social studies, science, and the fine and practical arts.

This report definitely recognizes the fact that the suggestion of more general units of instruction in the commercial curriculum of the junior high school is presented almost entirely from the standpoint of its desirability. The practicability of general units of commercial courses is, however, demonstrated by the existence today of elementary courses in junior business training or first lessons in business. The implication at least seems clear that this introductory and exploratory course might be extended as a general or composite course for the ninth year and that such a course might fuse into one unit of instruction the essentials of the specialized courses now offered in the ninth year—for example, office practice, bookkeeping, commercial geography, business writing, and possibly commercial arithmetic, if the latter is not fused with a general mathematics course. Typewriting, because of its distinct equipment, will probably persist as a separate unit of instruction.

Table XXII conclusively demonstrates that commercial education has found a permanent place in the junior high school program of studies. The junior high school should initiate by means of general and elective units of instruction all senior high school curriculums and thus meet its chief duty, namely, intelligently to guide all of its pupils to their proper placement in the educational differentiation of the senior high school. Educational guidance for those who will continue and vocational guidance for those who are to leave school are clearly the chief objectives in the administration of the junior high school program of studies. The commercial curriculum in common with other junior high school curriculums should conform to these accepted principles in the organization of the program of studies.

It is apparent, therefore, that the second half of the seventh year and possibly the first half of the eighth year should include a required introductory and exploratory course in junior business training or the elements of commercial education. Other curriculums are now preceded by similar required units of instruction—for example, general shop or general home economics in the case of industrial, home economics, and vocational curriculums; general mathematics, general science, and some practical arts training for the technical curriculum; required courses in the fine arts for the fine arts curriculum; and seventh- or eighth-year elective foreign language courses which result in try-out courses for the academic curriculum.

It is doubtful whether specialized courses should be offered as electives in the seventh year except for the small minority of those leaving school who rarely can be wisely segregated as early as the seventh year.

The course in junior business training should be offered throughout the eighth year or in the second half of the eighth year as an elective for those pupils whose interests and aptitudes are shown to be in commercial branches. The practice of making typewriting an eighth-year elective is followed in over one half of the 6-3-3 organizations. Specialized commercial courses might be offered in part of the eighth year and in the ninth year for those who are to leave school at the end of the junior high school period. However, only the large schools can meet the needs of this minority of commercial pupils without serious interference with the more general courses which should be offered to the majority of commercial pupils who will continue into the senior high school.

In the ninth year for the present at least bookkeeping and typewriting will persist as the major commercial electives. When junior business training is adopted as both a required exploratory course and as an elective course in the seventh and eighth years, it may become possible to extend it into the ninth year as a progressively organized general commercial elective. In fact, junior business training courses have been prepared in textbook form for a progressive elective throughout the junior high school. Typewriting is offered as an elective in the ninth year in nine centers and will doubtless persist as a ninth-year elective.

In each curriculum it should be the purpose of the junior high school to promote the continuance of its pupils into the same curriculum of the senior high school. Therefore, the junior high school commercial curriculum should be constructed in expectation of the continuance of the majority of the pupils into the senior high school. In accepting this principle in the organization of junior high school commercial courses it is not necessary to disregard the year-unit basis of organization. "Each subject should be so organized that the first year of work will be of definite value to those who go no further; and this principle should be applied to the work of each year."[1] Strictly, the two principles of year-unit organization of courses and of deferred value of senior high school courses may be interpreted to mean, as here suggested, general introductory courses organized in the junior high school on the year-unit basis and highly specialized courses in the senior high school.

The commercial teachers of the fourteen centers included in their reports information with regard to the subjects of the core curriculum which are required of commercial pupils. A summary of the reports shows that English is uniformly required for the full allotment of time in

[1] *Cardinal Principles of Secondary Education*, p. 17. Bureau of Education Bulletin No. 35, 1918.

all three years. Social studies is required in either the eighth or the ninth year or in both years when commercial electives are offered. Science is required in approximately one-half of the centers, usually for one year of two to five periods a week. General mathematics or algebra is required in ten centers. More than half of the centers require the commercial pupils to take practical arts. Geography is required in only five centers and usually as commercial geography. In most centers geography is completed before commercial electives are offered. Foreign languages appear as electives in three centers and in these cases are optional with some commercial elective.

There is little uniformity of practice in the core curriculum required of commercial pupils in the fourteen centers. The one exception is the English requirement. Commercial electives have been so numerous in most of the centers as seriously to limit the core curriculum, particularly in the eighth and ninth years. The situation invalidates the practice of integrating the junior high school program of studies by a body of constants required of all pupils through the three years. The junior high school should not be stratified by exclusive and self contained curriculums. There should be major units of instruction—for example, English, social studies, mathematics, science, fine and practical arts, and health—common to all curriculums. In other words, the major portion of the junior high school program of studies should consist of constants which will integrate the program of studies, and the minor portion should consist of electives which will initiate the differentiated curriculums of the senior high school.

Those who are to leave school during or at the end of the junior high school period are the one group of pupils who must to some extent be deprived of the socially integrating influences of a major body of constants. These constants, however, should be required in identity of content and time allotment of all pupils continuing into the senior high school. Vocational curriculums of either an industrial or commercial type necessarily result in a reduction of the time allotment to constants, but vocational curriculums do not necessarily eliminate constants.

The evolution of general commercial courses for the junior high school and the restriction of time allotments to commercial electives on a basis equal to that of other electives will promote the organization of a body of constants in the program of studies and thus increase the socially integrating influence of the junior high school. A core curriculum will then be common to all pupils however they may be differentiated in their minor preferences for academic, technical, commercial, industrial, or

fine arts electives. There are pressing and serious problems in the present administration of the junior high school commercial curriculum which deserve further study by a more extended inquiry than was planned for this investigation.

English

The English electives at Okmulgee are in part finding and broadening courses offered as try-out courses in the seventh and eighth years. Superintendent H. B. Bruner discussed his program of finding and broadening courses at the Cleveland meeting of the Department of Superintendence of the National Education Association in February, 1922; his discussion will be found in the proceedings.[1] A year course is offered in the ninth year for pupils who excel in the try-out courses in public speaking.

The electives in English at Los Angeles are offered to the ninth-year pupils who desire extra training in constructive written composition or in oral English. Library practice is an intensive course of six periods a week for the full ninth year.

The experiment of English electives is unique in these two school systems among at least the fourteen co-operating centers. It is doubtless true that the experiment is no more extensive generally. Judgment of the desirability and practicability of English electives in the junior high school should be suspended until the practice becomes more general. It is at least significant that English electives have found a place in the program of studies of Los Angeles and Okmulgee.

English majors are offered in higher institutions for both their cultural and their vocational values. Possibly similar electives in a simplified form may be both practicable and educationally and vocationally valuable for secondary-school pupils.

Home Economics

Electives in home economics are offered in one or more of the seventh, eighth, and ninth years by each of the fourteen centers. Five centers offer electives in the seventh year, eight centers in the eighth year, and thirteen centers in the ninth year. Five centers offer electives in the ninth year only; seven centers offer electives in both the eighth and the ninth years; three centers offer electives in all three years.

A comparison of Tables XIX and XXII reveals extensively varied practice. In the seventh year three centers give both required and elective courses; eight centers give required courses only; and two

[1] "The Superintendent and the Course of Study," *Addresses and Proceedings of the National Education Association*, LX, 1431–34.

centers give elective courses only. In the eighth year six centers give both required and elective courses; three centers give required courses only; and two centers give elective courses only. In the ninth year two centers give both required and elective courses; one center gives only required courses; and eleven centers give elective courses only. There is a majority vote in only two instances—required courses only in the seventh year and elective courses only in the ninth year.

That home economics has been given a place in the junior high school program of studies is conclusively shown by Tables XIX and XXII. That the practice as to required or elective courses has not become stabilized is demonstrated with equal conclusiveness. The extensive variation has produced confusion in the organization of junior high school courses in home economics and will lead to possibly greater confusion until a more comprehensive investigation determines clearer distinctions between the common need of all junior high school girls for home economics and the special needs of those who have special interest in or aptitudes for home economics.

Distinctions of needs clearly drawn will tend to lessen the present confusion between required and elective courses, since the former should be required of all pupils and the latter offered to those who elect special training in home economics. When required courses only are offered in the eighth year, some pupils are deprived of the privilege of eighth-year home economics electives which are equivalent to the electives in the academic and commercial curriculums. When elective courses only are offered in either the eighth or the ninth year, the common need of all girls for a progressive course in home economics throughout the junior high school is sacrificed.

The time allotments to electives in home economics with respect to both the number of weeks a year and the number of periods a week reflect as widespread variation as the situation with regard to required and elective courses. In the seventh year the number of weeks varies from nine to forty, that is, from a quarter-year to a full year. There is apparent, however, a general purpose to make seventh-year electives try-out or exploratory courses to a large degree, since the quarter-year electives are given for five periods a week and the full-year and half-year electives for one, two, three, and four periods a week. Yet this purpose is not clear in all centers, since by grouping electives seventh-year girls in three centers may elect a maximum of four to six periods a week. The needs of overage girls in the seventh year may warrant intensive home economics electives in the first year of the junior high school. Definitely

ascertained individual needs can alone determine the alternative of intensive try-out courses for seventh-year pupils.

In the eighth year there are four quarter-year electives of five periods a week, three half-year electives of five periods a week, and five half-year electives of one to three periods a week; there are fifteen full-year electives varying from one to eight periods a week. Both try-out and intensive home economics electives are apparently offered by these varied time allotments. It is exceedingly difficult to distinguish how far each elective is determined by the clearly ascertained needs of the group of girls electing the course. Again, it is clear that home economics has found a place in the junior high school program of studies and equally clear that it is not yet definitely determined what that place shall be. In the absence of any extensive investigation to aid in the stabilizing of practice, it is not strange that such varied practices exist, particularly in subjects so comparatively new to the curriculum as the practical arts.

In the ninth year, electives in the majority of the centers may be grouped by girls electing to specialize in home economics to the extent of one to two periods a day for a full year. In this respect there is uniformity of purpose to offer intensive courses in home economics to girls who by aptitude and interest prefer a home economics major elective to other electives in the ninth year. The same grouping of electives, to the extent of making a major elective, is also possible in the eighth year of six centers.

The range of variation in time allotments of both required and elective courses in home economics suggests the inference that time allotments are first fixed for the traditional subjects of the curriculum and the balance of the time schedule allotted to the practical arts and the fine arts. Makers of programs of studies, if entirely frank, would admit the present preponderating influence of traditional practice. New courses of study are inevitably forced to this unequal competition for a just share in time schedules. There is a vital need to determine the actual educational values of comparatively new courses of study in the administration of the curriculum and on this evaluation to base the types of new courses and the time distribution. Until this evaluation and stabilizing of time allotments can be effected by a comprehensive program of curriculum readjustment the present confusion in evaluation and the present varied practice of time distribution are sure to persist.

The types of home economics electives are far more uniform in the fourteen centers than the types of industrial arts electives. Table XXII shows five types, namely, clothing, foods, home and family, textiles, and

millinery. In this respect home economics courses have become generally uniform. They are not uniform with respect to time allotments and with respect to their character as constants or electives.

Required courses in home economics, if conditions with respect to traditional subjects and college-entrance requirements can be adjusted, should be coextensive with the full three years of the junior high school. The average time allotment is between two and three periods a week in the seventh and eighth years and about the same in the ninth year in the junior high schools which require home economics in the ninth year.

Electives are offered in home economics in the seventh and eighth years apparently for two reasons: first, because the time schedule does not permit the requirement of the subject and, second, because the schools aim to provide exploratory or try-out courses. The first condition should not be permitted to continue, and the objective of exploratory or try-out courses is usually achieved in other subjects not by electives but by constants required of all pupils.

The general purpose of an elective is to provide additional work for those who have aptitude and capacity for the elective. In the fourteen centers investigated the home economics electives comply with this general purpose to some extent in the eighth year and almost entirely in the ninth year. The types of courses are well established. The time allotments to home economics electives in the eighth and ninth years should be fixed largely by the time allotments to electives in other curriculums. Practically equivalent time allotments to the electives of all curriculums, except in the case of vocational electives, will promote the organization of a core curriculum which should be commonly required with all differentiated electives.

Industrial Arts

One is impressed with the formidable variety in the types of industrial arts electives: seven types of electives in the seventh year, eighteen in the eighth year, and twenty-one in the ninth year. The magnitude of the problem of adapting the actual shop practices of the industrial world to courses of study in the secondary school is equally impressive. That this problem has required long experimentation should occasion no surprise. No other course of study in the curriculum has been confronted with as involved a problem of adapting the practices of society to educational processes. The present experiments, however, in commercial education and in social studies are due to similar problems of adapting varied commercial and social practices to educational use. In fact, the whole curriculum is confronted with as yet unsolved problems because

of the tremendous significance of the change in point of view from disciplinary to social and practical values in education.

The situation is effectively summarized by Charles H. Judd as follows:

> There is a new spirit in elementary education; it is the spirit of attention to practical needs. It has slowly but surely penetrated the conservatism of the course of study. . . . . The fact is that school reform is rendered inevitable by social progress and rendered difficult and slow by lack of assimilative power on the part of the school. . . . . If one says that the range of studies offered to ordinary boys and girls must be enlarged to meet the increased responsibilities of modern life, there will be no dispute. If one says that schools must become more intelligent in preparing their pupils for life, again there will be no one to deny the truth of the assertion. . . . . It may be that the process of adding a little here and subtracting a little there is all that our school system is ready to undertake. . . . . It certainly would be more expeditious and more economical of human energy if we could devise some way of reconstructing the school program on the basis of a national consideration of the demands of modern life.[1]

No apologies are offered or needed for the oft-repeated reference to the imperative need of an extension of the present study, for it was the purpose of this investigation to demonstrate the indisputable need of a comprehensive and nation-wide program of curriculum readjustment and to find out how far school systems will welcome the opportunity to co-operate. The variations of curriculum practice in every course of study, as pointed out in this report, demonstrate the need of further investigation, and the self-sacrificing professional spirit of the administrators and teachers in the fourteen centers included in this investigation proves a widespread willingness to co-operate.

In the case of the industrial arts there are additional reasons for the variety of electives offered in the fourteen centers. One should not forget that the industrial expansion of the past fifty years presents today a bewildering variety of activities to those who are attempting to formulate courses of study in industrial arts. Furthermore, every system of schools is wholly justified in its effort to have industrial arts electives reflect the local industrial interests of the community.

The Smith-Hughes subsidy has resulted in concentrating the energies of industrial education leaders and instructors on the vocational courses which receive subsidy aid. There have come, therefore, clear lines of demarcation between vocational education for those leaving school in the junior high school period who need intensive occupational training

[1] Charles H. Judd, "Fundamental Educational Reforms," *Elementary School Journal*, XXIII (January, 1923), 336, 337, 339, 341.

for placement in industry and general industrial arts designed to meet the needs of the great majority of boys in acquiring manual skill, in becoming familiar with the common everyday demands for mechanical knowledge, in preparing for useful service in the home and for the avocational pursuits which so frequently in the case of men and boys take the form of manual or mechanical interests, and in acquiring a sympathetic understanding of the great industrial expansion by which modern life is both surrounded and conditioned.

The problem of equipping a special vocational shop is one of adapting the shop conditions of the particular industry to a school environment, and the problem of selecting an instructor is a matter of finding someone who has had experience in the particular industry and has in addition personality and adaptability. Federal and state subsidies have stimulated the rapid development of vocational shops.

On the other hand, the problem of equipping a general shop for industrial arts training is comparatively involved because of the varied industrial interests included. The instructor who can adequately meet the tests of the varied industrial activities in a general shop is seldom the product of actual industrial specialization. The difficulty of finding instructors adapted to a general shop has discouraged many an administrator from introducing industrial arts courses. Conditions, therefore, have favored the rapid evolution of the special shop and impeded the development of the general shop.

The situation has raised the question in many school systems as to whether a course in general shop should be offered as a required subject to all junior high school boys or a succession of courses in special shops on a rotating and progressive plan. Both practices prevail. Where the vocational needs of a group of boys demand a particular vocational shop for only a part of the school day, economy in administration requires that the shop be used for industrial arts training when not needed for a vocational class. The special types of shops are, therefore, practicable for the larger schools but prohibitive in expense for the smaller schools. The latter are forced to adopt a general-shop type of organization.

If general industrial arts training is to reflect conditions of industrial life and to prepare boys for actual life-needs in their own experience, it should extend beyond manual training or woodwork, particularly in the junior high school. Consequently, the general shop or courses in home mechanics or household mechanics offer opportunities for a progressively organized course in woodwork, metal-work, electricity, sheet metal, elementary machine shop practice, and other advanced industrial

training which will win the respect and sustain the interest of junior high school boys. The varied types of special and general industrial arts courses shown in Table XXII reflect a recognition of these demands and efforts to meet them. A small proportion only of the special shops provide for a time allotment which would comply with the Smith-Hughes requirements. The inference is clear that the great majority of electives are offered for industrial arts training in curriculums which do not have placement in industry as their immediate objective.

Table XXII also reveals much variation in both the length of the courses and the weekly time allotments. In the seventh year there are seven full-year electives of five periods a week, four full-year electives of one to three periods a week, two half-year electives of four or five periods, and three quarter-year try-out electives of five periods.

In the eighth year, there are fifteen full-year industrial arts electives of five periods a week and seven Smith-Hughes vocational electives of a full year for a half-day five times a week; there are four full-year industrial arts electives of one, two, three, or four periods a week; there are two half-year electives of five periods and four half-year electives of four periods; there are three quarter-year electives of six periods and sixteen quarter-year electives of from two to five periods a week.

In the ninth year there are two full-year electives of six periods a week, twenty-seven full-year electives of five periods a week, and seven full-year electives of from one to three periods a week; there is one half-year elective of five periods a week and four half-year electives of from two to three periods a week; there are fourteen quarter-year electives of from two to five periods a week; there are twelve full-year vocational courses of the Smith-Hughes type.

The purpose of the full-year half-day vocational courses is entirely clear. The purpose of the full-year electives of five periods a week which predominate in both the seventh and the eighth years is to offer either an elective to technical-curriculum pupils or an elective to boys of other curriculums which is equivalent in time allotment to other subject electives. This predominating practice is evidence of a clearly defined demand on the part of junior high school boys for industrial arts training on a par with the demand for other electives of the program of studies. A similar objective in curriculum construction must prevail in the case of other full-year industrial arts electives of less than five periods a week and in the case of half-year electives of five periods a week.

The exigencies of the time schedule and of the schedule of classes apparently determine to a large degree the number of periods a week.

The purpose of half-year courses of less than five periods a week and of all quarter-year electives must be to offer in rotation try-out courses of a semester or a half-semester in length. As has been pointed out in connection with home economics, the try-out or exploratory purpose in other subjects of the curriculum is achieved through a general course required of all pupils. It is easy, however, to understand that the preference of some school systems for special types of shops favors a try-out or elective plan of rotating shops rather than a required general-shop practice.

There is evident, both in the types of electives and shops and in time allotments, wide variation of practice in industrial arts. Conditions have been noted which account for the variation. Greater uniformity of practice will come with further study of the actual objectives and of the types of courses and shops and with the determination of the actual needs of pupils. The present situation is in desperate need of an extensive investigation which will help to stabilize practice. As in the case of home economics, the industrial arts have found a place in the junior high school program of studies, but it is not yet entirely clear what that place shall be. However, complete uniformity of practice is probably undesirable since the courses in industrial arts should reflect the industrial interests of each section of the country and of each community.

New courses of study usually find their way into the curriculum first as electives and later as required courses when in the process of evolution they become adapted to the common needs of a large pupil body. Tables XIX and XXII plainly indicate that there are industrial arts courses in both stages of development. It is to be hoped that the present tendency to include industrial arts in the core curriculum for general educational purposes will continue. Fine and practical arts should in time become co-ordinate with the five major branches—English, mathematics, social studies, science, and health. This development of large major units of instruction will do much to relieve the junior high school of the charge frequently made against it that "it attempts so many subjects that it distracts its pupils."

Electives in industrial arts have no place in the seventh year except as try-out courses to precede the later development of a required industrial arts course or to meet the needs of those who leave school in the junior high school period. Industrial arts electives should, however, be offered when pupils are permitted to choose between other electives. Whenever other electives are offered in the eighth or ninth year, industrial arts electives should be included as optional courses for those pupils whose

objective may be a technical course in the senior high school or other higher institution and for those pupils who have time for enrichment courses with other required and elective work. In the case of those who are to leave school vocational electives should be offered in all three years in those junior high schools where the school system provides no other alternative in a special trade school or in a vocational curriculum of a high school. Moreover, vocational electives are most intelligently and effectively administered as individual pupil problems.

Required industrial arts courses in the core curriculum of all three years of the junior high school should result in reducing the electives in industrial arts to the basis to which electives in other subjects have been reduced, that is, not as alternatives of required courses but as specialized electives for those pupils whose needs and educational or vocational aims demand industrial arts training. Yet electives in other subjects serve as enrichment courses for pupils whose achievement records and schedules of classes permit of additional elective work. Industrial arts to a very limited degree, therefore, will be likely to persist as extra-elective subjects for some pupils.

Latin

Latin is offered as an elective in one or more of the three years of the junior high school in each of the fourteen centers—in the seventh year of four centers, in the eighth year of eight centers, and in the ninth year of all centers. Cleveland, Denver, and Somerville offer a Latin elective in each of the three years. Kansas City, a 7-4 school system, offers Latin in the seventh and ninth years. Detroit, Los Angeles, Okmulgee, Pittsburgh, and Rochester offer Latin in both the eighth and ninth years. Five centers only continue the practice of introducing Latin in the ninth year. A high degree of uniformity prevails in the allotment of time both in the number of weeks a year and in the number of periods a week. All of the electives are for a full year of five periods a week with the exception of three half-year courses and two full-year courses of four periods a week.

Nine of the centers complete the beginners' Latin book at the close of the ninth year, as has been the usual practice for many years; two centers complete the book at the end of the eighth year and one center at the end of the seventh year. Two centers complete the beginners' book at the close of the eighth year in the case of those classes which begin the work in the second semester of the seventh year and at the close of the ninth year in the case of those who begin in the first semester of the ninth

year. Nine of the centers, therefore, do not advance the completion of the traditional first-year Latin work in spite of the fact that four of the nine centers give from a half-year to a full year of work in the eighth year. Cleveland and Denver complete the first-year Latin work after the three semesters in the second half of the seventh year and all of the eighth year. Los Angeles completes the work after one full year in the eighth year and Somerville after two years of work in the seventh and eighth years.

The following comments made in the teachers' reports are of importance in discussing variations in practice:

Atlanta.—[Atlanta offers a Latin elective in its eighth year, which is the first year of the high school.] Since our first year of Latin consists in the teaching of the first-year book, I do not see that any changes could be made in this year; otherwise the Latin necessary for the continuance of the course would not be taught.

Berkeley.—Time to give a small Latin play in some good classes would be appreciated as well as more time for the reading of such books as *Ad Alpes* by Nutting.

Birmingham.—I would like to see a separate course worked out for those students who intend to take Latin for two years only. Such a course would admit of greater variety in reading material during the second year and would also give time for greater emphasis on the relation between Latin and English.

Cleveland.—[Cleveland offers Caesar to the junior high school class which completes first-year Latin at the close of the eighth year.] In our Caesar classes we use a simplified version of Caesar in addition to the original text. We would substitute some other reading for Caesar.

Decatur.—We recommend the introduction of an elementary Latin reader after completing the beginners' book and before taking up Caesar's Gallic Wars.

Denver.—[The beginners' Latin book is actually completed in the middle of the second semester of the eighth year, followed by Nutting's Latin reader and Ritchie's stories, etc., from the front of D'Ooge and Eastman's *Caesar in Gaul*. Denver also uses Sanford and Scott's *Second Latin Book for Junior High Schools*.] The committee working on the revision of the curriculum feels that the 7-2 Latin should be less formal and have more background work than heretofore—more the type of work shown in Gray's books.

Detroit.—Four semesters of language work in the junior high school is equivalent to three semesters in the senior high school. [Detroit uses Sanford and Scott's *Junior Latin Reader* in the second half of the ninth year.] We recommend more easy reading and more interesting material—more time to create a background for Latin and to correlate with everyday life. [Detroit is the only center which offers a general language course; this is an exploratory try-out course in the first semester of the eighth year. The course is in the initial stage of experiment; it is described in part in connection with the discussion of the modern languages.]

Kansas City.—Owing to the fact that we do not have a sufficient number of junior high schools, many of our pupils finish the seventh grade in the ward schools and consequently cannot take beginning Latin until the ninth year. The work of beginning Latin in the ninth grade is the same as in the seventh grade. [Caesar is offered in the ninth year to the pupils who take first-year Latin in the seventh year; Kansas City has no eighth year.]

Los Angeles.—We would like several changes, one of which is much more easy reading—of a classical type, not just made Latin—for all grades. (*Ora Maritima* is used as supplementary reading in the eighth year. Nutting's Latin reader, *Fabulae Faciles*, Latin plays, selections from Ovid, etc., are used in the ninth year. The following projects or problems are included in the junior high school Latin courses: vocabulary, verb forms, and declension games; trees or some other device to show English derivations; comparative view of conjugations; vocabulary contests; contests in accuracy; production of Latin plays; and finding Latin in inscriptions, advertisements, journalism, art, literature, etc.)

Okmulgee.—We are considering the advisability of postponing the reading of Caesar to the second semester of the second year and the early part of the third year. Each pupil is responsible for Latin quotations, clippings from newspapers, pictures, and advertisements—in fact, anything which shows the influence of Latin—for our bulletin board. In the eighth grade lists of Latin abbreviations, derivatives, books about Roman or mythological characters, Latin expressions heard or read in the papers or on moving picture screens, etc., are kept. Time in English classes is given to the study of prefixes, suffixes, root words, etc.

Pittsburgh.—*Fabulae Faciles* and *Viri Romae* are used as supplementary texts in the second semester of the ninth year. We encourage the learning of current Latin phrases and Latin proverbs and the use of Latin in the business world—for example, in advertising, pupils bring in advertisements which show the use of Latin words or show Latin influence. I wish it were possible so to organize the work and the classes that the slow pupils might do from 8-1 to 9-2 the work which the brighter pupils do from 8-1 to 9-1. Many pupils fail in Latin not because they cannot learn Latin but because they cannot master it within the time limit we assign.

Rochester.—In 8 B and 8 A the Latin period of thirty minutes is part of a sixty-minute Latin-English period. [Among the fourteen centers Rochester is unique in this practice of co-ordinating Latin and English in the same period and with the same teacher.] The pupil is urged to note and bring in all references to Rome, Roman life, habits, religion, etc., found in his reading of books, newspapers, and periodicals. These are pasted on charts and hung in the classroom. The notebook is one of the essential and valuable features of work in all terms. It is divided into sections: Project 1, clippings containing pure Latin phrases; Project 2, clippings containing Latin words commonly thought to be English; Project 3, English derivatives based on Latin vocabulary; Project 4, list of

Latin words with English derivatives to assist in the solution of their meaning; Project 5, English words the spelling of which is affected by their derivation. Part II of the notebook is for references of all kinds: pictures, advertisements, etc.

St. Louis.—Pupils bring in lists of musical terms closely related to Latin or lists of words met in botany, physiology, or other studies which appear to be of Latin derivation. Charts illustrating such subjects as "Latin Expressions in Daily Life," "The Lawyer's Use of Latin," "State Mottoes," etc., are made by the pupils. Short Latin plays are given by the members of the class. We have a Latin Club which studies the history and customs of the Romans, prepares short Latin dialogues or sketches, and spends some time in vocabulary matches and the study of derivations. I should suggest no important changes in the first year course until there shall be available a first year Latin book made up of easy graded reading material with study forms and rules based on the reading matter.

Somerville.—[Ritchie's *Roman Life* is used as supplementary reading in the ninth year.] We have a Latin Club in which interest is directed toward anything pertaining to Roman life and customs. [Latin games of various types are used in all three years.] Somerville has, in addition to the ninth year work, a seventh year class, a combined seventh- and eighth year class, and a second year Latin class in the eighth year.]

The introduction of Latin courses into the seventh and eighth years of the junior high school and the adaptation of Latin courses to these years have been accompanied by many varied plans to provide the background of first year Latin, to vitalize a so called dead language, and to motivate the pupils' study of Latin by an introductory view of Roman life and customs and by the gathering of present day evidence in many varied forms that Roman civilization and the Latin language are still alive in a changed and modern life and speech. All of this introductory work takes time and explains in part why so few centers attempt to advance the time of completing first year Latin before the end of the ninth year. The quotations reveal a practically unanimous purpose to make Latin study a more effective instrument in secondary education.

The rebellion against Caesar as the sole required reading following first year Latin is so general in the fourteen centers that already alternative reading texts have been adopted by several centers for eighth and ninth year courses, and the desire for easier reading is expressed by others. Possibly the fearful toll of mortality among first year and second year high school pupils caused by Caesar's Gallic Wars may be largely prevented by more reasonable, better motivated, and better adapted courses in the seventh and eighth years preparatory to the work of the former first and second high school years.

The tendency to abandon Latin which has characterized the administration of the secondary-school program of studies in the past fifteen years should be checked before Latin goes the way of Greek. The hope of conserving the place of Latin in the program of studies may lie, at least in part, in the types of courses which are finding their way into the first two years of the junior high school. The English language and twentieth-century civilization owe too much to the Latin language and to Roman civilization to consign Latin to the educational scrap-heap. There will always be a group of secondary-school pupils whose intelligence quotients prove that they are capable of profiting from Latin courses, whose education will be incomplete without first-hand knowledge of the Latin origin of their own daily speech and the literature of most of the peoples they will read, and who cannot intelligently interpret present-day social life and modern civilization without intimate knowledge of Roman life and civilization. Latin has too long persisted in the program of studies to be summarily dismissed without a hearing. The mistake has not been that Latin has been a part of the curriculum but that it has been required of countless multitudes of secondary-school pupils who should never have been permitted to take the subject because of ineptitude for Latin, incapacity to master it, or a complete lack of any need for it.

Hope for the persistence of Latin is found in the extracts from the reports of the fourteen centers and in the varied types of experiments now being conducted in these fourteen cities and in many other junior high schools to construct introductory courses for the seventh and eighth years. These courses will prepare the way for the first-year and subsequent courses of secondary-school Latin. Moreover, their preparatory try-out purpose will aid, through the effective operation of a selective medium, in decreasing the educational mortality due to wholesale and unwise election of Latin.

Mathematics

Berkeley reports no required mathematics in the ninth year but offers an elective in algebra.

Decatur offers in the ninth year an option between algebra and commercial arithmetic.

Kansas City notes that algebra is elective in the ninth year but that it is required for graduation from the senior high school. Therefore, all junior high school pupils who continue into the senior high school elect algebra.

Okmulgee reports no required mathematics in the ninth year but offers a choice between algebra and general mathematics.

St. Louis, commenting on a similar option in the ninth year, says:

> General mathematics is recommended to those pupils who expect to take mathematics only one or two years; algebra to others. Pupils who take either course for a year are admitted to geometry in the senior high school. Those who take algebra in the junior high school are, on the completion of the work in geometry, permitted to take Algebra 3, the third half-year of algebra; those who take general mathematics are permitted to go into Algebra 2, the second half-year of algebra.

St. Louis makes a statement which goes far toward explaining the slow introduction of general mathematics beyond the first two years of the junior high school:

> The tendency seems to be to have the pupils of higher mentality choose algebra, although they are not advised to do so by the teachers. In this school [the Ben Blewett Junior High School] the tendency in general seems to be for children whose parents have had a high-school or college education to choose algebra; in other words, tradition plays a part in the choice.

Modern Languages

Of the twelve centers which offer modern languages during the junior high school years, all offer French in one, two, or three years, and eight offer Spanish in one, two, or three years. Thus eight centers offer both French and Spanish, and four centers give French only.

Four centers offer French in each of the seventh, eighth, and ninth years; four centers offer French in both the eighth and the ninth years; and four centers offer French in the ninth year only. Practice is, therefore, equally divided into three varied programs. The time allotments are full-year courses in all three years with the exception of a half-year course in the seventh year; with three exceptions, the courses require five periods a week.

Four centers offer Spanish in each of the seventh, eighth, and ninth years. Kansas City gives Spanish in both the seventh and the ninth years, which are consecutive because of the 7-4 organization. Two centers offer Spanish in the ninth year only.

The procedure is the same for Spanish as for French in each center which gives both languages. The time allotments in Spanish show the same general uniformity as prevails in the French electives. Full-year courses of five periods a week are required in all but four of the Spanish electives. Two courses are half-year courses and two are full-year courses of only four periods a week.

It has been frequently thought that Spanish is largely restricted to those sections where Spanish is in use by a large proportion of the population. It is true that the four centers of the Pacific Coast and the Southwest offer Spanish, but there is one center which offers Spanish in each of four other sections, namely, the Mountain section, the South, the Middle West, and New England. In the limited extent of this investigation inferences are not safe, but the question is raised as to whether Spanish electives are a response to sectional needs or a substitute for German so generally offered as a modern language elective prior to the world-war.

The centers vary in their practice mainly as to the number of years in which modern languages are offered in the junior high school program of studies. Cleveland gives the following outline of its program of three consecutive junior high school years in modern languages, which, with some modification, is likely to be the practice of the other centers which give three years of modern languages:

The report includes two groups of pupils: (1) Those who begin a modern language in 7 A (second semester). They may drop it at the end of 8 A and receive credit for one year of work in the senior high school but none for high-school graduation. They may continue it through 9 A and then receive credit for two years of work in the senior high school and credit for one year toward high-school graduation. (2) Those who begin a modern language in 9 B and continue it through 9 A. These pupils receive credit for one year of work in the senior high school, and this work also counts toward high-school graduation. The second group covers in two terms the same amount of work that the first group does in the three terms—7 A, 8 B, and 8 A.

The choice of electives is as follows: A child may elect a language in 7 A. In 9 B he has an opportunity to make one of two elections: either he may elect a new language and continue the one begun in 7 A or he may drop the one begun in 7 A and elect a new one combined with another subject.

It is expected that pupils who elect a language in 7 A have received a grade of G (80–90) in English in 7 B. This is not true for pupils beginning a new language in 9 B.

Cleveland's administration of a three-year program of foreign languages (the same procedure obtains in Latin) is a logical and suggestive one for those junior high schools which can give three years to foreign languages. If the practice prohibits the development of a comprehensive core curriculum and the integration of the junior high school program of studies, there is serious question of the desirability of the practice even though Cleveland and other junior high school centers have effectively shown the administrative practicability of the plan.

On the other hand, if the electives in the eighth year and the last half of the seventh year are offered as courses additional to the core curriculum required of all pupils, the practice is commendable as a means of enriching the curriculum for those pupils whose ability justifies additional courses. This practice, however, deprives pupils beginning a foreign language in the ninth year of the preparatory and background courses for which there has been a long-felt need in all foreign languages. It would seem advisable, therefore, to modify the practice to the end of offering in the eighth year or in the second semester of the eighth year a course which parallels in purpose the 7 A course; both groups of pupils would thus benefit by the primary objective in introducing foreign languages into the first two years of the junior high school, namely, the orientation of foreign languages through preparatory and background courses.

There can be little doubt of the wisdom of foreign language electives in the seventh and eighth years if precautions are taken to restrict the electives to those pupils whose ability to take additional enrichment electives has been clearly demonstrated. However, early electives and any other type of early differentiation are likely to invalidate some of the primary and fundamental purposes of the junior high school—the construction of general units of subject-matter for the exploration of aptitudes and capacities and for the revelation of the ability to go on with higher education. The junior high school is both a sorting or trying-out stage of secondary education and a motivating agency for later courses. Second, there is incumbent on the junior high school an obligation to continue elementary courses of study to the point where they merge gradually and fully into the secondary courses and, further, to continue in a gradually diminishing degree the democratic and socially integrating administration of the elementary-school curriculum.

A core curriculum common to all junior high school pupils for the full three years is the inheritance which the junior high school receives from elementary education. On the other hand, a program of electives and differentiated curriculums is the inheritance which it receives from the senior high school. The junior high school is confronted not with the choice of these inheritances as alternatives but with the problem of articulating the two types of curriculum administration. Thus it will actually function as the transitional unit of the 6-3-3 organization to articulate and weld together the public school system. Tendencies, therefore, toward disintegrating and stratifying the junior high school, particularly in its first year, are dangerous menaces to its chief mission

in the public school system. If foreign language electives in the seventh year can be prevented from developing such tendencies, they can become helpful media in solving the problem of an adequate curriculum for the supernormal group.

Four centers give only eighth-year courses preparatory to the traditional first-year French course in the ninth year. Pittsburgh distinguishes between the objectives of the eighth- and ninth-year courses thus:

> In eighth-year French the chief objective is to give the pupil freedom and ease of speech in French, a knowledge of the beginnings of grammar, and a fair-sized vocabulary, and also to show the customs of the French people. In ninth-year French the chief objective is a thorough study of the fundamentals of grammar and ability to translate freely from one language to another.

This purpose to make the eighth-year course one of background preparation and orientation is the same objective which so generally prevails in introductory Latin courses.

Detroit is unique among the fourteen centers in the organization of a general language course. It has not been adopted for general use in the intermediate schools because it has not yet passed the purely experimental stage. The experiment will be of interest to all junior high schools, and for this reason a description of the general language course as given in Detroit's report is quoted:

> As a basic course preceding intensive work in any one language the pupils should have a general language survey in order that they may see for themselves the significance of foreign languages and acquire the interest needed for a profitable study of any foreign language.
>
> This general language course begins with the study of the origin, nature, and function of language, leading up to the study of the origin, development, and changes of the English language, a study of its elements and its relation to other languages; an effort is made to show the grammatical structure of the language, how and why grammar is a necessary part of logical language; it includes a study of etymology to enrich the vocabulary and shows the composite structure of many English words; there is an effort to show pupils the value of language power both for thinking and for communicating thought.
>
> This course is simply the A B C of philology.
>
> To bring this large amount of material within the range of eighth-grade pupils we proceed from the known and little by little develop the unknown and build up the course. We stimulate interest in well-known words, such as "automobile," "autograph," "telegraph," etc. We thus start lists of words that the pupils will increase with a real understanding of their meaning. We study the principal Greek and Latin word-stems as well as prefixes and suffixes. We develop interest in word-study and cultivate the use of the dictionary.

The study of these foreign elements in English leads to the study of the early history of Britain and correlates with geography. The pupils see how the coming of the Romans, the Anglo-Saxons, the Danes, and the Normans affected the language. We then study the Germanic and Romanic elements in everyday English. By the use of German and French cognates we arouse an interest in these languages, and by Latin derivations we show the value of a knowledge of Latin as the source of about 60 per cent of the English language.

The pupils learn to count to 100 in French, German, and Latin. They learn songs in French and Latin, mottoes, proverbs, etc. They watch the papers for the daily use of foreign elements and keep lists of these.

By this word-study the pupils become aware of the power of words. The grammatical structure of sentences begins to have real meaning for them. We study the different ways of expressing the same thought.

When the pupil has finished this course, he has a realization of the importance of language as such and has discovered whether he can profit by a study of the foreign languages. The teacher is able to judge somewhat of the pupil's language sense, and thus the course serves as a prognosis of language ability before the pupil begins the intensive study of any foreign language.

Modern language courses in some junior high schools are offered at different times for two groups of pupils: first, those whose ability warrants the election of an additional course in the seventh year; second, those who must defer to the ninth year the beginning of a modern language. In the latter case the need of all pupils for a preparatory semester or year in a background course should not be denied.

Other junior high schools prefer to restrict modern language electives to the eighth and ninth years and provide a year preparatory course and a year course of the usual first-year high-school work. This second program for modern languages is the logical approach in the development of modern languages in the junior high school program of studies. When precautions against the disintegrating influence of the former plan are actually operative and when it is determined that modern language courses in the seventh year are actually elective and not alternative to the general constants so essential to the fundamental purposes of the junior high school, the needs of the comparatively small group of exceptional children in the seventh year should be met by offering additional elective courses in modern languages.

Music

Eight of the fourteen centers offer music electives in the fifth and sixth years. Music and social studies are the only subjects of the curriculum in which electives are offered in the fifth and sixth years of the elementary school. The fact that music electives are offered in the fifth

and sixth years in a majority of the fourteen school systems is indicative of a tendency to follow in the school a custom which has always prevailed in the home, namely, the early introduction of musical training. Of the thirty-two courses offered by the eight centers, all are for a full year, twenty-five of them for one period a week and seven for two periods a week.

It is not shown in the reports whether the prevailing practice is to give the work during school hours or after school hours. As a rule, the work is undoubtedly after school in small groups of children from two or more grades. The courses offered are instrumental with the exception of the work in chorus. Probably, also, the expense involved in the purchase of instruments or in music lessons restricts the electives to those elementary-school pupils who can afford them. If restrictions were not unavoidable, the work would naturally become part of the required course in music.

Manifestly, the time has not yet come in many school systems when the board of education can either purchase musical instruments or give free instrumental music lessons; yet this practice, in one respect or the other, prevails in some centers. The situation as revealed in Table XXII shows very clearly the great expansion of the music courses of study, even in the elementary school, from exclusive voice training and singing to instrumental work, orchestra, band, etc. The socializing influence of this expansion both on the school itself and on the community is too patent to need more than passing mention. Truly the curriculum is undergoing revolutionary reconstruction.

In the junior high school years the expansion of the music course is still greater. Thirteen of the fourteen centers offer music electives in the seventh year. Ten of the eleven centers which have an eighth year give electives in the eighth year. Eleven of the fourteen centers offer courses in the ninth year. These figures plainly show the current trend toward a wider development of music courses in the junior high school. The same general restriction of time to a limited number of periods a week as was seen in the case of the elementary school is followed in the junior high school. The table shows that all electives are full-year courses with the exception of two quarter-year courses.

In the seventh year, of twenty-nine electives, twelve are for one period a week; one, for one and one-half periods a week; and eight, for two periods a week. Three vary from two and one-half to four periods a week. Five electives provide for five periods a week—the same as major electives in other subjects.

In the eighth year, of twenty-four courses, eleven are for one period a week; five are for two periods a week; one is for three periods; one is for four periods; and six courses provide for five periods a week.

In the ninth year, of thirty-five electives, ten are for one period a week, and fourteen are for two periods a week; seven vary from two and one-half to four periods, and four provide for five periods a week.

Of the total of eighty-eight electives listed by the fourteen centers in the seventh, eighth, and ninth years, sixty-one, or 69 per cent, have a time allotment restricted to one or two periods a week.

It is clear, therefore, that the general practice is to offer music electives in all three of the junior high school years and to limit the work to one or two periods a week. The limiting of the work to one or two periods a week suggests the possibility of making music electives part of a junior high school club organization—a practice which now prevails to some extent in several of the centers. Doubtless, the time given to music in the regular time schedule should be reserved for the required course in the core curriculum. Club time serves to enrich the curriculum, and naturally in the front rank of club electives are the courses in art and music.

The fact that fifteen, or 17 per cent, of the eighty-eight music electives are full-year courses of five periods a week reveals a tendency to add a fine arts curriculum to the program of studies. When the time allotted to fine arts electives equals the time allotted to other subject electives, the aptitudes of pupils for the fine arts will receive the recognition due to all native endowments. The equalization of educational opportunities will thus become an accomplished fact.

An examination of the types of courses offered in Grades 5 to 9 shows that instrumental types are given sixteen times in the list of electives, voice training or chorus types eight times, and appreciation types nine times. The number of instrumental courses almost equals the number of the other two types combined and naturally so because it is the instrumental type of course which has in recent years been so widely adopted. The other types of courses have existed for a comparatively much longer time.

Summarizing, 69 per cent of the junior high school electives in music are limited in time allotments to one or two periods. Of a total of sixty-one short courses, thirty-four are for one period a week, and twenty-seven are for two periods. Practice varies in assigning these courses to the regular time schedule or to the club period. The latter practice offers the easier administrative solution of short music electives.

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The music electives to which are assigned time allotments equal to the time allotments of other major electives are 17 per cent of all of the junior high school music electives listed. This practice is evidence that a fine arts curriculum has found a place in the junior high school program of studies and also, to a less degree, that major electives in music are being made additional enrichment courses for pupils in other curriculums whose achievement records in the core curriculum and other electives justify the taking of extra work. Such enrichment courses, which extend the opportunities of short music electives in club organizations, should be carefully administered for the purpose of safeguarding other major interests. For this reason electives in music which call for five periods a week and which are supplementary to other curriculums should be restricted to the small group of junior high school pupils capable of carrying heavy schedules.

Music electives are, therefore, entering the program of studies as club activities, as major electives in a fine arts curriculum, and as electives supplementary to other major electives or as additional enrichment courses for pupils who can carry extra work. The important socializing effect of the expansion of music courses, both required and elective, should be recalled in an evaluation of the development.

Science

Berkeley alone offers a full-year elective of general science in the seventh year. The electives offered by Okmulgee, elementary natural science for nine weeks in the seventh year and elementary physical science for a half-year in the eighth year, are finding and broadening or try-out courses. This limited practice of offering science electives in the seventh and eighth years is to be expected. An elective in these years might be justified on the basis of an additional course for supernormal pupils or on the basis of try-out courses, as Okmulgee administers the seventh- and eighth-year curriculums.

Table XIX reveals a tendency to make introductory courses in science in the seventh and eighth years part of the core curriculum required of all pupils for the exploration of aptitudes for science, for the revelation of the ability to pursue higher courses in science, and for the interpretation of the science environment of early adolescent life in the junior high school.

On the other hand, eight of the fourteen centers offer science electives in the ninth year. This more extended practice is also to be expected, inasmuch as it has been the traditional practice to offer science electives

in the first year of the high school. The progressive development of a science course for the three years of the junior high school to be required of all pupils was discussed in connection with Table XIX.

The present practice, however, of science electives in the ninth year will possibly persist so long as college-entrance requirements demand sixteen units for four years of high-school work instead of twelve units for the three years of the senior high school. In other words, the hope of a continuous and progressive course of study in science for the three years of the junior high school lies in reducing college-accrediting relations from four to three years. Yet, in spite of present accrediting requirements, three centers have made general science a required subject in the ninth year.

Seven of the eight centers which have science electives in the ninth year offer general science. Decatur offers an elective in general biology. St. Louis alone offers three electives—full-year courses in general science, botany, and physiology. The evidence is clear that general science has become the generally accepted science course of the junior high school. This course adapts itself far more effectively to the fundamental objectives of the junior high school than more specialized types of science courses. The inference is warranted, therefore, that general science has won a permanent place in the junior high school program of studies. Attention is called to the discussion in the preceding chapter where the reader will find a more general review of the present trend in the development of the science course of study in the junior high school.

Science electives may be warranted in the seventh and eighth years for two purposes: first, to provide additional courses for the small group of pupils who, by reason of high intelligence quotients and ability to maintain high achievement records, are able to carry enrichment courses; second, to provide science electives as try-out courses in the first two years of the junior high school. The more general practice, however, is to make science part of the core curriculum in the seventh and eighth years.

Science electives in the ninth year are an inheritance of traditional practice in the administration of the ninth-year curriculum and a present largely unavoidable concession to college-accrediting relations covering four years of secondary-school work. The more desirable practice, which is not general but which has been initiated in a few centers, is to continue science into the ninth year as part of the core curriculum.

Two conditions which now generally prevail will require remedy before science finds its proper place in the junior high school program of

studies. First, there is general uncertainty as to materials and methods in the problem of adapting general science to the seventh and eighth years. Some experimentation, however, has already been made in developing introductory courses in science for the seventh and eighth years, and some textbooks have been partly adapted to courses more elementary than the usual ninth-year general science. More constructive progress both in introductory courses and in suitable textbooks must be made before science becomes generally practicable in the seventh and eighth years. The hope of the situation lies in the fact that real constructive progress is steadily being made. Second, the present college-accrediting relations must be reduced from four to three years before general science in the ninth year can be made a required and culminating unit of a progressive three-year course in the junior high school program of studies.

Social Studies

Kansas City explains its electives in social studies in the fifth and sixth grades by the following statement: "Work in citizenship is done in a Junior Citizens' Club formed in each room. Safety work is done largely through room representatives in a School Safety Council which co-operates with a city organization." Okmulgee's elective in the sixth year is part of its finding and broadening courses. The limited practice of offering electives in social studies in the elementary school suggests the inference that unique local conditions are reflected in exceptional practices which have little significance for general application.

In the ninth year all centers except Atlanta, Detroit, Rochester, and St. Louis offer electives in social studies. There are eleven different types of electives offered in the other ten centers. Berkeley, Birmingham, Cleveland, Kansas City, Okmulgee, and Somerville offer one full-year or half-year elective each. Denver offers two half-year courses or the equivalent of one full-year elective. Pittsburgh offers three half-year electives or an option of two of the three for the year. Los Angeles offers two full-year optional electives. Decatur offers one full-year elective and an optional year of work composed of three part-year courses.

A comparison of Tables XIX and XXII shows that of the four cities which offer no electives, three give required courses. In other words, one city gives neither an elective nor a required course in the ninth year. Of the six cities which offer one ninth-year elective, three have a required course. Of the two cities which offer two full ninth-year optional electives, one has a required-course.

In the case of anyone familiar with the widespread adoption of social studies courses in the junior high school program of studies and sympathetic with the involved problems of adapting social custom and practice to a course of study for pupils of junior high school age, the extreme variation in present curriculum practice should not occasion surprise or undue concern. Rather, the present varied practice should bring hope that out of widespread and varying experimentation will come ultimately a generally accepted solution of the problem.

General courses of study pass through two consecutive stages. First, there is a co-ordinate stage of previously isolated units of instruction which in the co-ordinate stage remain isolated in materials and time distribution but are taught by one teacher to the same classes. For example, general mathematics is largely divided into arithmetic, algebra, and intuitive geometry, all three making a co-ordinate general mathematics course taught by one teacher to the same class but each taught as an isolated unit in materials and time allotments. Second, there is a unified or fusion stage when the isolated units of the co-ordinate stage are gradually fused into one unified body of materials. There are also various stages of transition between the two extremes of co-ordinate and unified courses.

Social studies divided into courses in community civics, vocational civics, economic civics, political civics, current world history, etc., represent the co-ordinate stage of isolated units of instruction. General social science as given in some of the chapters of Part II of the Twenty-second Yearbook of the National Society for the Study of Education[1] represents the second stage. Formerly isolated but related courses of study are fused into one unified general social science course. However desirable the unified course may be, its practicability has yet to be determined.

In social studies both stages exist in the present administration of the curriculum. Table XXII reveals the present preponderance of the co-ordinate stage. Yet the reports of several cities mention experiments which are being conducted in general social science, that is, the unified stage of development. The co-ordinate stage is inevitable because each isolated unit of instruction—for example, community civics, vocational civics, economic civics, current world history, etc.—must first develop its own body of materials before its most valuable content can be selected

[1] *The Social Studies in the Elementary and Secondary School.* Twenty-second Yearbook of the National Society for the Study of Education, Part II. Bloomington, Illinois: Public School Publishing Co., 1923.

for a unified social science course. In other words, the co-ordinate stage is desirable because it offers an opportunity to evaluate the materials of the isolated units of instruction before the more difficult task is undertaken of determining relative values in the selection of materials for a general social science course.

It should occasion no surprise that new courses of study are offered as electives before they are adopted in the core curriculum. Electives offer a far greater range of experimentation than required units of instruction. The fact that even a few attempts are being made to fuse social studies courses into a general social science course is indicative of a tendency to pass from the inevitable stage of co-ordinate courses to the equally inevitable and consequent development of unified courses. Out of chaos comes order, but it is a long evolutionary process.

The investigation reveals the varying degrees of development of two consecutive stages in the evolution of new courses of study. It must remain for a more comprehensive investigation to undertake the readjustment of the present varied practices. Such an extension of the present investigation will hasten the rapid evolution from a virtually chaotic condition to greater stability and uniformity of practice. The burden of the educational shift from disciplinary to social values has fallen heavily on the social studies. Stability and balance once achieved in the social science field will react on the socializing tendencies evident in the whole program of studies.

Electives in social studies increase the opportunities for experimenting with varied types of social studies courses in the general experiment of evaluating the present isolated units of instruction. When the relative values of social science materials have been determined in the present co-ordinate stage of teaching social studies as related but isolated units, the practicability of a unified course in general social science may be more intelligently determined.

It is necessary to recognize the consecutive development of new and general courses of study from electives to constants, from isolated units of instruction to general co-ordinate courses, and from co-ordinate courses to unified courses of study. A failure to recognize these inevitable stages of the evolution of the curriculum may lead to a blind rejection of new courses of study. On the other hand, a sympathetic understanding of the evolution now in the process of development will lead to a willing acceptance of present conditions of varied practice as inevitable and desirable and will lead also to a voluntary and helpful contribution toward

more stable and generally acceptable practice. That the latter attitude of mind prevails in the fourteen centers investigated has been demonstrated beyond controversy by the unanimous offer of co-operation in an involved and difficult task. That a similar state of mind prevails generally throughout the great majority of elementary and junior high schools in the country will be demonstrated with equal certainty by the same type of co-operative effort which will attend an extension of the investigation.

CHAPTER VI

SUBJECT DIVISIONS OF THE CONSTANTS

The preceding chapters have amply demonstrated the fact that the American schools are widely divergent in their administration of the school subjects. This chapter and the next will carry the study into the details of subject organization and will report facts which show how various school systems deal with the subdivisions of their courses. This chapter will take the first step of analysis and will report on the gross subdivisions of each of the subjects which appear in the curriculum as constants.

Four tables are included in this chapter, namely, Tables XXIII to XXVI. These tables deal with the constants of the various curriculums. A separate table is devoted to industrial arts because so many subdivisions are included in this subject that it could not well be co-ordinated with the subjects reported in Tables XXIII and XXIV. A separate table is devoted to penmanship because this subject differs in character from the other subjects.

The facts reported in this chapter and the next show that the differences in the curriculums of the schools are not merely quantitative differences. The qualitative definitions of the subjects taught differ no less than do the time allotments in different grades and in different schools.

The wide variation of practice in administering the subject divisions of the constants reveals in greater detail than do the facts in any preceding chapter the need of the type of curriculum reconstruction which was discussed in chapter ii and at later points in this report.

The following detailed comments are intended for the special teachers and supervisors.

ENGLISH

All of the fourteen centers include composition and literature and reading in the curriculum of each of the five years; they also include spelling in the fifth and sixth years. The allocation of grammar varies as to grades, and spelling is not given by all centers in the junior high school years.

Table XXIV shows that the average proportional distribution of the English time allotments of all centers for all grades is greater for literature and reading than for any other division of the subject. An

TABLE XXIII

NUMBER OF MINUTES A WEEK ALLOTTED TO THE SUBJECT DIVISIONS OF THE CONSTANTS

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
English:																	
Composition:																	
Grade 5	90	60	60	100	60	164	160	140	140	150	145	150	150	165	165	60	123.9
Grade 6	90	60	60	100	60	82	160	90	140	150	100	150	*	125	160	60	105.2
Grade 7	90	40	60	80	50	120	65	50	147	38	110	140	104	60	147	38	82.4
Grade 8	X†	40	X	70	50	80‡	50	X	147	38	105	140	104	60	147	38	80.4
Grade 9	55	40	87	25	100	87‡	50	119	174	38	125	120	104	120	174	25	88.9
Grammar:																	
Grade 5	60	140	60	75	15	.....	.....	40	94	.....	25	.....	.....	.....	140	15	63.6
Grade 6	60	140	90	75	15	30	.....	135	94	.....	50	.....	160	40	160	15	80.8
Grade 7	60	40	90	135	120	100	75	140	105	38	50	75	52	.....	140	38	83.1
Grade 8	X	40	X	45	120	40‡	60	X	126	38	40	75	52	60	126	38	63.3
Grade 9	45	40	63	45	.....	43‡	60	6	105	38	20	60	52	60	105	6	49.0
Literature and reading:																	
Grade 5	150	175	150	200	75	164	240	180	136	200	200	150	150	180	240	75	167.9
Grade 6	150	175	150	225	75	164	240	120	136	200	220	150	120	180	240	75	164.6
Grade 7	150	90	175	112	100	100	150	§	105	183	115	75	104	60	183	60	116.8
Grade 8	X	90	X	90	100	80	120	X	126	183	75	75	104	60	183	60	100.3
Grade 9	100	90	75	135	150	100	120	125	105	183	130	120	104	120	183	75	118.4
Spelling:																	
Grade 5	75	100	75	100	75	95	100	100	55	125	100	75	75	75	125	55	87.5
Grade 6	75	100	75	75	75	90	100	100	55	50	75	75	75	75	100	50	78.2

* Part of the time allotted to grammar in the sixth grade in St. Louis is apportioned to composition; since no suggestion of the basis of the apportionment is made in the report, the time is given under grammar as it is reported.

† X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

‡ Denver reports 120 and 130 minutes a week respectively in the eighth and ninth years allotted to composition and grammar combined. The time has been apportioned in this table on the basis of two-thirds to composition and one-third to grammar.

§ Kansas City adds the following note: "About one-third of the pupils in the seventh grade are enrolled in an 'Extra English' class which meets five times a week with class periods of 50 minutes each. Silent reading is stressed in these classes. The work includes literature, appreciation, memorizing of poems, dramatization, and oral and written English. The course is elective in that it is chosen under guidance."

TABLE XXIII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
English: Spelling—*Continued*																	
Grade 7	75	30	75	20	50	25	10	60	36	16	.....	10	.....	60	75	10	38.9
Grade 8	X	30	X	20	50	50	10	X	36	16	.....	10	.....	60	60	10	31.3
Grade 9	.....	30	.....	20	50	20	10	.....	36	16	.....	.....	.....	.....	50	10	26.0
Health:																	
Hygiene:																	
Grade 5	50	86	75	80	100	30	50	50	25	100	80	25	.....	60	100	25	62.4
Grade 6	50	86	.....	80	100	30	50	50	25	30	80	25	.....	30	100	25	53.0
Grade 7	50	85	.....	45	100	10	60	25	20	55	.....	5	30	60	100	5	45.4
Grade 8	X	85	X	45	52	10	60	X	20	55	.....	5	15	60	85	5	40.7
Grade 9	.....	85	.....	.....	.....	10	60	63	20	55	.....	5	30	.....	85	5	41.0
Physical education:																	
Grade 5	75	64	75	60	75	100	240	110	100	150	200	120	60	200	240	60	116.4
Grade 6	75	64	75	60	75	100	210	110	100	150	200	120	60	200	210	60	114.2
Grade 7	75	115	75	90	50	90	240	100	180	220	120	55	74	75	240	50	111.4
Grade 8	X	115	X	90	50	90	240	X	180	220	120	55	37	75	240	37	115.6
Grade 9	40	115	.....	90	.....	90	240	187	180	220	120	55	74	75	240	40	123.8
Home economics:																	
Clothing:																	
Grade 5	.....	90	24*	.....	.....	39	75	42	75	.....	.....	120	.....	60	120	24	65.6
Grade 6	.....	45	.....	.....	.....	52	105	83	38	.....	.....	50	.....	60	105	38	61.9
Grade 7	.....	.....	.....	90	100	130	150	.....	100	.....	80	135	208	60	208	60	117.0
Grade 8	X	100	X	90	.....	65	60	X	80	.....	.....	90	.....	60	100	60	77.9
Grade 9	.....	.....	.....	.....	.....	.....	60	.....	.....	184	.....	90	.....	.....	184	60	111.3
Foods:																	
Grade 5	.....	.....	24*	.....	.....	20	.....	41	.....	.....	.....	.....	.....	.....	41	20	28.3
Grade 6	.....	45	48	.....	.....	19	.....	82	33	.....	.....	50	.....	.....	82	19	46.2
Grade 7	.....	100	48	90	.....	130	75	.....	90	.....	80	45	52	40	130	40	75.0
Grade 8	X	.....	X	90	100	65	30	X	75	.....	.....	90	52	40	100	30	67.8
Grade 9	.....	.....	.....	.....	.....	.....	30	.....	.....	183	.....	45	.....	.....	183	30	86.0

* The unapportioned time allotment of 60 minutes a week reported by Birmingham for home economics has been divided by giving two-fifths of the time to clothing, two-fifths to foods, and one-fifth to home and family.

TABLE XXIII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Home economics—*Continued*																	
Home and family:																	
Grade 5	.....	.....	12*	.....	.....	16	.....	.....	.....	.....	.....	30	.....	.....	30	12	19.3
Grade 6	.....	.....	12	.....	.....	19	.....	.....	4	.....	.....	50	.....	.....	50	4	21.3
Grade 7	.....	.....	12	.....	.....	.....	75	.....	10	.....	60	.....	.....	20	75	10	35.4
Grade 8	X	.....	X	.....	.....	.....	30	X	45	.....	.....	.....	.....	20	45	20	31.7
Grade 9	.....	.....	.....	.....	.....	.....	30	.....	.....	183	.....	45	.....	.....	183	30	86.0
Mathematics:																	
Algebra:																	
Grade 7	.....	.....	82	.....	.....	.....	23	.....	.....	.....	.....	.....	.....	.....	82	23	52.5
Grade 8	X	.....	X	.....	.....	125	78	X	100	.....	69	150	104	.....	150	69	104.3
Grade 9	200	.....	225	225	250	125	240	.....	100	.....	206	300	.....	285	300	100	215.6
Arithmetic:																	
Grade 5	150	200	300	225	125	205	250	250	175	175	150	250	150	250	300	125	203.9
Grade 6	150	200	275	225	125	205	250	250	175	175	150	250	120	250	275	120	200.0
Grade 7	150	200	193	225	250	125	208	250	100	275	234	150	149	180	275	100	192.1
Grade 8	X	200	X	120	250	125	154	X	.....	275	117	75	156	180	275	75	165.2
Grade 9	200	.....	225	.....	.....	.....	.....	.....	100	.....	.....	.....	.....	.....	225	100	175.0
Geometry:																	
Grade 7	.....	.....	.....	.....	.....	125	9	.....	100	.....	41	150	115	.....	150	9	90.0
Grade 8	X	.....	X	105	.....	.....	8	X	100	.....	89	75	.....	.....	105	8	75.4
Grade 9	.....	.....	.....	.....	.....	125	60	.....	.....	.....	69	.....	.....	.....	125	60	84.7
Science:																	
Agriculture:																	
Grade 5	.....	.....	.....	.....	.....	.....	.....	.....	30	.....	.....	.....	.....	.....	.....	.....	.....
Grade 6	.....	.....	.....	.....	.....	.....	.....	.....	30	.....	.....	.....	.....	.....	.....	.....	.....
Gardening:																	
Grade 5	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade 6	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade 7	30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* The unapportioned time allotment of 60 minutes a week reported by Birmingham for home economics has been divided by giving two-fifths of the time to clothing, two-fifths to foods, and one-fifth to home and family.

TABLE XXIII—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Science—*Continued*																	
General science:																	
Grade 6	.....	.....	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade 7	.....	200	.....	.....	.....	.....	120	.....	.....	.....	.....	120	130	.....	200	120	142.5
Grade 8	X	200	X	.....	250	.....	120	X	.....	.....	120	120	260	.....	260	120	178.3
Grade 9	.....	.....	225	.....	.....	.....	120	.....	.....	.....	.....	240	.....	.....	240	120	195.0
Nature study:																	
Grade 5	60	30	.....	.....	.....	20	.....	.....	60	100	120	.....	.....	30	120	20	60.0
Grade 6	60	30	.....	.....	.....	21	.....	.....	60	100	120	.....	30	30	120	21	56.4
Grade 7	60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Social studies:																	
Ancient, medieval, and early modern history:																	
Grade 9	.....	.....	.....	.....	.....	.....	300	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Community civics:																	
Grade 5	.....	50	50	.....	.....	.....	.....	.....	.....	.....	15	.....	35	30	50	15	36.0
Grade 6	25	50	75	.....	.....	.....	.....	.....	.....	.....	15	.....	35	30	75	15	38.3
Grade 7	.....	.....	88	36	.....	.....	.....	.....	.....	250*	22	120	.....	.....	250	22	103.2
Grade 8	X	.....	X	45	125	.....	165	X	.....	.....	187	96	.....	.....	187	45	123.6
Grade 9	.....	200	.....	.....	.....	.....	.....	.....	210	.....	.....	60	130	60	210	60	132.0
Economic civics:																	
Grade 6	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade 8	X	.....	X	.....	.....	.....	45	X	.....	.....	.....	.....	.....	.....	.....	.....	.....
United States history:																	
Grade 5	.....	100	75	125	150	.....	250	.....	.....	150	75	50	40	30	250	30	104.5
Grade 6	150	125	150	125	150	.....	250	.....	.....	150	125	50	40	30	250	30	122.3
Grade 7	250	200	187	144	250	200	300	250	210	.....	198	180	260	180	300	144	216.1
Grade 8	X	200	X	135	125	200	.....	X	.....	250	33	144	260	180	260	33	169.7
Grade 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	60	.....	.....	.....	.....	.....
Vocational civics:																	
Grade 6	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grade 7	.....	.....	.....	.....	.....	50	.....	.....	.....	55	.....	.....	.....	.....	55	50	52.5
Grade 8	X	.....	X	45	.....	50	.....	X	294	55	.....	.....	.....	.....	294	45	111.0
Grade 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	55	.....	.....	130	.....	130	55	92.5

* Includes economic civics.

TABLE XXIV

PROPORTIONAL DISTRIBUTION OF THE TIME ALLOTMENTS TO THE SUBJECT DIVISIONS OF THE CONSTANTS

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.*
English:																	
Composition:																	
Grade 5	24	13	17	21	27	39	32	30	33	32	31	40	40	39	40	13	29.8
Grade 6	24	13	16	21	27	22	32	20	33	38	23	40	.....	30	40	13	24.2
Grade 7	24	20	15	23	16	32	22	20	37	14	40	47	40	33	47	14	27.3
Grade 8	X†	20	X	31	16	32	21	X	34	14	48	47	40	25	48	14	29.8
Grade 9	27	20	39	11	33	35	21	48	41	14	46	40	40	40	48	11	33.4
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28.5
Grammar:																	
Grade 5	16	29	17	16	7	.....	.....	9	22	.....	5	.....	.....	.....	29	5	8.7
Grade 6	16	29	24	16	7	8	.....	30	22	.....	11	.....	45	9	45	7	15.7
Grade 7	16	20	22	39	37	27	25	56	27	14	18	25	20	.....	56	14	25.6
Grade 8	X	20	X	20	37	16	25	X	29	14	18	25	20	25	37	14	23.5
Grade 9	23	20	28	20	.....	17	25	2	25	14	7	20	20	20	28	2	17.1
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	17.1
Literature and reading:																	
Grade 5	40	37	44	42	33	39	48	39	32	42	43	40	40	43	48	32	40.4
Grade 6	40	37	40	47	33	45	48	27	32	50	49	40	34	43	50	27	40.7
Grade 7	40	45	44	32	31	27	50	.....	27	66	42	25	40	33	66	25	36.0
Grade 8	X	45	X	40	31	32	50	X	29	66	34	25	40	25	66	25	37.2
Grade 9	50	45	33	60	50	40	50	50	25	66	47	40	40	40	66	25	44.6
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	39.9

* These percentages were obtained as follows: (1) In the case of English, for example, there was secured the sum total of the time allotments of all centers to each division of the subject in each grade; in the fifth grade the sum total of the time allotments of fourteen centers to composition is 1,734 minutes; the sum total of the time allotments of eight centers to grammar is 509 minutes; the sum total of the time allotments of fourteen centers to literature and reading is 2,350 minutes; and the sum total of the time allotments of fourteen centers to spelling is 1,225 minutes. (2) The sum totals were added to obtain the grand total of the time allotments of all centers to all divisions of English in each grade; in the fifth grade the grand total of the time allotments to all divisions of English is 5,818 minutes. (3) The percentages are the ratio of the sum total for each division of English to the grand total for all divisions of English in each grade. Thus a fairly dependable average proportional distribution of the English time allotments of all centers to the divisions of English in each grade is obtained; in the fifth grade the average proportional distribution of the English time allotments of all centers to composition is the ratio of 1,734 minutes, the sum total time allotment to composition, to 5,818 minutes, the grand total time allotment to all divisions of English, or 29.8 per cent.

† X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

TABLE XXIV—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
English—*Continued*																	
Spelling:																	
Grade 5	20	21	22	21	33	22	20	22	13	20	21	20	20	18	33	13	21.1
Grade 6	20	21	20	16	33	25	20	23	13	12	17	20	21	18	33	12	19.4
Grade 7	20	13	19	6	10	0	3	24	9	6	.....	3	.....	34	34	3	11.1
Grade 8	X	15	X	9	16	20	4	X	8	6	.....	3	.....	25	25	3	9.5
Grade 9	.....	15	.....	9	17	8	4	.....	9	0	.....	.....	.....	.....	17	4	4.0
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14.5
Health:																	
Hygiene:																	
Grade 5	40	57	50	57	57	23	17	31	20	40	29	17	.....	23	57	17	33.2
Grade 6	40	57	.....	57	57	23	19	31	20	17	29	17	.....	13	57	13	28.5
Grade 7	40	43	.....	33	67	10	20	20	10	20	.....	8	29	44	67	8	25.0
Grade 8	X	43	X	33	51	10	20	X	10	20	.....	8	29	44	51	8	24.2
Grade 9	.....	43	.....	.....	.....	10	20	25	10	20	.....	8	29	.....	43	8	18.1
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	26.5
Physical education:																	
Grade 5	60	43	50	43	43	77	83	69	80	60	71	83	100	77	100	43	66.8
Grade 6	60	43	100	43	43	77	81	69	80	83	71	83	100	87	100	43	71.5
Grade 7	60	57	100	67	33	90	80	80	90	80	100	92	71	56	100	33	74.1
Grade 8	X	57	X	67	49	90	80	X	90	80	100	92	71	56	100	49	75.8
Grade 9	100	57	.....	100	.....	90	80	75	90	80	100	92	71	100	100	57	81.9
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	73.5
Home economics:																	
Clothing:																	
Grade 5	.....	100	40	.....	.....	52	100	51	100	.....	.....	80	.....	100	100	40	78.6
Grade 6	.....	50	.....	.....	.....	58	100	50	51	.....	.....	34	.....	100	100	34	54.5
Grade 7	.....	.....	.....	50	100	50	50	.....	50	.....	37	75	80	50	100	37	53.2
Grade 8	X	100	X	50	.....	50	50	X	40	.....	.....	50	.....	50	100	40	46.1
Grade 9	.....	.....	.....	.....	.....	.....	50	.....	.....	34	.....	50	.....	.....	50	34	39.3
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	52.8

TABLE XXIV—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Home economics—*Continued*																	
Foods:																	
Grade 5	.....	.....	40	.....	.....	27	.....	49	.....	.....	.....	.....	.....	.....	49	27	12.7
Grade 6	.....	50	80	.....	.....	21	.....	50	44	.....	.....	33	.....	.....	80	21	34.8
Grade 7	.....	100	80	50	.....	50	25	.....	45	.....	36	25	20	33	100	20	37.9
Grade 8	X	.....	X	50	100	50	25	X	38	.....	.....	50	100	33	100	25	45.9
Grade 9	.....	.....	.....	.....	.....	.....	25	.....	.....	33	.....	25	.....	.....	33	25	30.4
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	34.9
Home and family:																	
Grade 5	.....	.....	20	.....	.....	21	.....	.....	.....	.....	.....	20	.....	.....	21	20	8.7
Grade 6	.....	.....	20	.....	.....	21	.....	.....	5	.....	.....	33	.....	.....	33	5	10.7
Grade 7	.....	.....	20	.....	.....	.....	25	.....	5	.....	27	.....	.....	17	27	5	8.9
Grade 8	X	.....	X	.....	.....	.....	25	X	22	.....	.....	.....	.....	17	25	17	8.0
Grade 9	.....	.....	.....	.....	.....	.....	25	.....	.....	33	.....	25	.....	.....	33	25	30.3
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12.3
Mathematics:																	
Algebra:																	
Grade 7	.....	.....	30	.....	.....	.....	9	.....	.....	.....	.....	.....	.....	.....	30	9	3.1
Grade 8	X	.....	X	.....	.....	50	33	X	50	.....	25	50	40	.....	50	25	23.6
Grade 9	50	.....	50	100	100	50	80	.....	50	.....	75	100	.....	100	100	50	73.5
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19.8
Arithmetic:																	
Grade 5	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0
Grade 6	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100.0
Grade 7	100	100	70	100	100	50	87	100	50	100	85	50	56	100	100	50	80.7
Grade 8	X	100	X	54	100	50	64	X	.....	100	43	25	60	100	100	25	61.6
Grade 9	50	.....	50	.....	.....	.....	.....	.....	50	.....	.....	.....	.....	.....	50	50	17.9
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	72.1
Geometry:																	
Grade 7	.....	.....	.....	.....	.....	50	4	.....	50	.....	15	50	44	.....	50	4	16.2
Grade 8	X	.....	X	46	.....	.....	3	X	50	.....	32	25	.....	.....	50	3	14.8
Grade 9	.....	.....	.....	.....	.....	50	20	.....	.....	.....	25	.....	.....	.....	50	20	8.6
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8.1

TABLE XXIV—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Science:																	
Agriculture:																	
Grade 5	.....	.....	.....	.....	.....	.....	.....	.....	33	.....	.....	.....	.....	.....	.....	.....	6.2
Grade 6	.....	.....	.....	.....	.....	.....	.....	.....	33	.....	.....	.....	.....	.....	.....	.....	4.6
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.7
Gardening:																	
Grade 5	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6.3
Grade 6	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.5
Grade 7	33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.5
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.6
General science:																	
Grade 6	.....	.....	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22.7
Grade 7	.....	100	.....	.....	.....	.....	100	.....	.....	.....	.....	100	100	.....	100	100	86.4
Grade 8	X	100	X	.....	100	.....	100	X	.....	.....	100	100	100	.....	100	100	100.0
Grade 9	.....	.....	100	.....	.....	.....	100	.....	.....	.....	.....	100	.....	.....	100	100	100.0
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	68.7
Nature study:																	
Grade 5	67	100	.....	.....	.....	100	.....	.....	67	100	100	.....	.....	100	100	67	87.5
Grade 6	67	100	.....	.....	.....	100	.....	.....	67	100	100	.....	100	100	100	67	68.2
Grade 7	67	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9.1
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27.0
Social studies:																	
Ancient, medieval, and early modern history:																	
Grade 9	.....	.....	.....	.....	.....	.....	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	24.9
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.0
Community civics:																	
Grade 5	.....	33	40	.....	.....	.....	.....	.....	.....	.....	17	.....	47	50	50	17	14.7
Grade 6	11	29	33	.....	.....	.....	.....	.....	.....	.....	11	.....	47	50	50	11	14.2
Grade 7	.....	.....	32	20	.....	.....	.....	.....	.....	82	10	40	.....	.....	82	10	15.0
Grade 8	X	.....	X	20	50	.....	79	X	.....	.....	85	40	.....	.....	85	20	23.5
Grade 9	.....	100	.....	.....	.....	.....	.....	.....	100	.....	.....	50	50	100	100	50	54.8
All grades	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	21.8

TABLE XXIV—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.	High	Low	Av.
Social studies—*Continued*																	
Economic civics:																	
Grade 6	11																1.5
Grade 8	X		X				21	X									1.7
All grades																	.7
United States history:																	
Grade 5		67	60	100	100		100			100	83	100	53	50	100	50	85.3
Grade 6	67	71	67	100	100		100			100	89	100	53	50	100	50	82.8
Grade 7	100	100	66	80	100	80	100	100	100		90	60	100	100	100	60	81.9
Grade 8	X	100	X	60	50	80		X		82	15	60	100	100	100	15	58.0
Grade 9												50					5.0
All grades																	67.0
Vocational civics:																	
Grade 6	11																1.5
Grade 7						20				18					20	18	3.1
Grade 8	X		X	20		20		X	100	18					100	18	16.8
Grade 9										100			50		100	50	15.3
All grades																	7.5

average for all grades of almost two-fifths of the English time is allotted to literature and reading. Composition ranks second in the average proportional allotment of the English time for all grades; grammar is third and spelling fourth. The general practice, therefore, in the administration of the English course of study indicates a tendency to stress the cultural and the social values of literature appreciation and facility in the use of oral and written expression. The strictly disciplinary values of grammar have lost their predominating influence in the organization of English courses of study for the intermediate grades where for so many years grammar prevailed as the major unit of instruction. That this change in practice has not become general, however, is evident from the variation in practice shown in Tables XXIII and XXIV.

The shift from disciplinary to social values is progressing, but it has not been completely effected. The conflict of judgment as to fundamental values and objectives still persists in causing confusion in curriculum-making and wide variation in curriculum administration. Certainly it is clear that much is yet to be done in adjusting conflicting points of view. Encouragement can be found, however, in the evaluation which the fourteen centers in their administration of the curriculum give to the four major divisions of the English course of study. The evaluation as determined by the average proportional distribution of time allotments is 40 per cent of the English time to literature and reading, 28 per cent to composition, 17 per cent to grammar, and 15 per cent to spelling.

In the case of literature and reading the average proportional time allotment is practically the same for the fifth and sixth years. There is a decrease in the seventh year. This is doubtless due to the greater proportion of time allotted to grammar in the seventh year. The proportion rises slightly in the eighth year and considerably in the ninth year. The increase in the ninth year is consistent with the high-school practice of emphasizing literature in the English course of study. The articulation of elementary and secondary courses of study in English, therefore, is influenced by the former practice in the upper grammar grades of emphasizing formal grammar and by the former high-school practice in the ninth year of emphasizing literature. Table XXIII shows wide variation among the fourteen centers in time allotments to literature and reading in all grades—nearly three hours a week in the fifth and sixth years and approximately two hours a week in each of the junior high school years. On the percentage basis, however, the extent of variation is greater in the junior high school.

A more equitable distribution of time to the four divisions of English in the junior high school and less concentration or intensive work on a particular division of the subject in any one grade will promote a better articulated course of study and a more progressive and consistent development in each division of English. There will also be conserved the indisputable right of pupils leaving school in the junior high school period to training in literature appreciation and in the formation of reading habits. Consequently, literature appreciation must not be made a deferred value only for those who continue in the senior high school. As a matter of fact, the normal curve of reading reaches its highest point at thirteen or fourteen years of age. Therefore, both the present tendency to increase the proportional allotment of English time to literature in the seventh and eighth years and the provision for extensive reading in the junior high school library should be encouraged.

A readjustment of the former practice of concentrating grammar in the seventh and eighth years should be sought by shifting from formal and disciplinary grammar to functional grammar. When the latter aim in grammar teaching is once accepted, there must be adopted at the same time a plan to distribute grammar work among the junior high school grades and the upper elementary grades in order that grammar may actually be made continuously and progressively functional. With this development in grammar work will come a more equitable time distribution to literature and to oral and written composition.

Table XXIV reveals the fact that in the average practice of the fourteen centers composition is ranked second in importance in each of the five years. This is emphatically true in the fifth and ninth years where the average proportional time allotment to composition is much larger in comparison with grammar. There is a close approximation of average time allotments to composition and grammar in the sixth, seventh, and eighth years. The tendency to increase time allotments to composition in comparison with grammar in the sixth, seventh, and eighth years is evident from the following: Ten centers give more time to composition than to grammar in the sixth year, leaving only four centers which give more time to grammar. In the seventh year, seven centers give more time to composition than to grammar; two centers give the same time to both, and five centers give more time to grammar than to composition. In the eighth year, six centers of the eleven which have an eighth year give more time to composition than to grammar; three give the same time to both, and two give more time to grammar than to composition. The tendency is clear, but the variation in time allotments to

composition shows that practice has not become uniform. New textbooks for the junior high school grades with their greater emphasis on composition are doing much, however, to stabilize practice, and the revision of former courses of study for these grades is doing even more.

In the case of grammar the smallest proportional time allotment, in the average practice of the fourteen cities, is in the fifth year and the largest in the seventh year, with greater proportional time in the eighth year than in the ninth year. The greatest variation is in the seventh year, and there is an excessive amount of variation in the sixth year. Grammar is clearly becoming adjusted in the curriculum; it is becoming rationalized as a means to an end, namely, the interpretation of correct use. It is gradually becoming less of an end in itself and is properly becoming subordinated in importance to composition and literature. Both the present evident tendencies and the excessive variations in practice as revealed in Tables XXIII and XXIV point conclusively to widespread experiments in the reconstruction of the English course of study.

The time allotments to spelling reflect a practice which is probably general in all school systems. All of the fourteen centers include spelling in the English course of the fifth and sixth years; twelve of the fourteen centers continue it in the seventh year. Nine of the eleven centers which have an eighth year require spelling in the eighth year. Seven centers require spelling in the ninth year. Half of the fourteen centers include spelling in all three years of the junior high school. At the same time there is a gradually decreasing time allotment from 21.1 per cent in the fifth year to 4.9 per cent in the ninth year. Astonishing variation in practice appears in each year of the junior high school—from 34 per cent to 3 per cent in the seventh year, from 25 per cent to 3 per cent in the eighth year, and from 17 per cent to 4 per cent in the ninth year. On the other hand, the percentage of variation is somewhat less in the upper grades of the elementary school—from 33 per cent to 13 per cent in the fifth year and from 33 per cent to 12 per cent in the sixth year. Long established practice has stabilized curriculum administration in the elementary grades, while the reconstruction of the curriculum in the junior high school is too recent to warrant even an expectation of uniformity of practice.

A majority of the centers continue spelling from the elementary school into the junior high school, but it is not yet determined to what extent spelling as a distinct division of English shall be made part of the junior high school program of studies. The average proportional distribution in the seventh and eighth years is about 10 per cent of the English time, while in the ninth year it is reduced by more than one-half. Appar-

ently the elementary-school practice of making spelling a distinct part of the curriculum will cease somewhere in the junior high school, probably in the seventh or eighth year.

Two practices, both of which appear in several of the fourteen centers, will contribute to the solution of the problem of spelling in the junior high school. First, the actual need of pupils for spelling is being definitely determined by means of achievement tests and standardized spelling lists. Second, spelling is being effectively correlated with other English work and, in some cases, with other subjects. The first method of solving the problem avoids useless waste of time in the case of those who do not need further formal study of spelling. It also promotes the determination of the words which are causing difficulty for each pupil who needs to continue the formal study of spelling. On the other hand, correlation promotes the actual functional use of spelling. The latter is an ideal practice, but it seldom continues long in operation. The surer method is the achievement test and the standardized lists. After those pupils are selected whose needs warrant the giving of more time to spelling, some type of spelling tablet should be employed which focuses the attention of both pupils and teacher on the misspelled words. This should be followed, if necessary, by the spelling text. Thus the initial step in the solution of the spelling problem in the junior high school can be made the spelling achievement test plus administrative courage to disregard traditional practice and to rely wholly on the actual determination of the real needs of the pupils.

Summary.—A fundamental change is occurring in the administration of the English course of study which is due to the same condition that is causing similar changes in other courses of study, namely, the drift from disciplinary to social values in education. In English the effect is evident in the tendencies mentioned: first, to make literature and reading the major division of the English course of study; second, to increase the time allotment to oral and written composition; third and chiefly, to change grammar from an end in itself to a means to an end; and, fourth, to reduce the problem of spelling in the junior high school to a determination of the actual needs of junior high school pupils for spelling.

HEALTH

The types of health instruction given in the fourteen centers are hygiene and physical education. Hygiene is part of the health course of study in all but one of the centers in the fifth year and in all but two of the centers in the sixth and seventh years. One center—other than

the 7.4 school systems—in the eighth year and six centers in the ninth year do not give instruction in hygiene. Hygiene is not, however, as generally adopted as a part of the health course as is physical education. There are only two grades in two centers in which physical education is not given, but there are twelve grades in seven centers in which hygiene is not given. Physical education, therefore, is a constant in the curriculums of all centers in both the elementary school and the junior high school. While hygiene appears as a constant in either the elementary-school curriculum or the junior high school curriculum of each center, practice varies in the continuity of the work.

The following are the average weekly time allotments to health instruction, that is, hygiene: fifth year, 62 minutes a week in thirteen of the fourteen centers; sixth year, 53 minutes a week in twelve of the fourteen centers; seventh year, 45 minutes a week in twelve of the fourteen centers; eighth year, 41 minutes a week in ten of the eleven centers; ninth year, 41 minutes a week in eight of the fourteen centers. On a daily average, these time allotments are: fifth year, 12 minutes; sixth year, 11 minutes; seventh year, 9 minutes; eighth year, 8 minutes; ninth year, 8 minutes. These time allotments are administered in one of two ways. Either a weekly period is set aside for health instruction by the physical education instructor, or the instruction is given incidentally in connection with physical education, gymnasium, or playground activities. The latter is the prevailing practice. Other variations in practice are included in the reports, but the two types of administration mentioned prevail in a large majority of the fourteen centers.

The course of study in hygiene is not as definitely organized as the course of study in physical education. Consequently, the responsibility of the physical instructors to give health instruction is not as carefully determined as their responsibility in the case of physical training. The large proportion of time allotted to hygiene in each grade, varying from 33.2 per cent in the fifth year to 18.1 per cent in the ninth year, or an average of 26.5 per cent for all grades, justifies more serious attention to the construction of a hygiene course of study than is manifest in the majority of the centers.

The problem of where health instruction shall be given is largely unsolved. This investigation shows that the instruction is distributed, as it probably should be, among three groups of teachers. First, social studies teachers are giving health instruction as part of their courses of study, covering such features as agencies engaged in promoting physical welfare—clinics, playgrounds, parks, and welfare organizations—

health as a public, home, and personal responsibility, etc. Second, science teachers are giving instruction in the physiology of the subject. Third, physical instructors are teaching personal hygiene. In practically all of the centers confusion is evident, due to lack of clear distinctions between the related features of health instruction as taught by the three groups of teachers and to the consequent overlapping of instruction and waste of instructional time and energy.

In centers where the initiative in securing articulation of the related features of health instruction has been taken by the supervisors of health education, conscious and purposeful efforts to articulate the instruction are being made. Inasmuch as health instruction is peculiarly a function of the health or physical education staff of a city school system, it would seem desirable to place the responsibility definitely on the health staff. Certainly it is true that of the related features of health instruction as distributed in general practice among social studies, science, and physical education, the most vital is the personal hygiene instruction or the functional phase. Social studies teachers give the instruction from the standpoint of social practice, science teachers approach the work from the scientific standpoint, but physical instructors teach it in its personal significance with a view to securing its proper functioning in the habits of each child.

When, therefore, through the initiative of the health director, articulation is secured with the social studies and the science departments and when the physical education instructors are made as responsible for the effective use of the average time allotment of 26 per cent to hygiene as they now are for the 74 per cent to physical education, then the present confusion will be largely removed. Furthermore, the almost desperate need of both preadolescent and early adolescent children for reliable instruction in matters of personal hygiene and for sympathetic guidance in the development of right habits of living and right habits of thinking of themselves and others—this and kindred needs of pupils will receive the attention which they have so long deserved.

Thus it appears that physical education—that is, gymnasium work, playground activities, directed games, and other organized and recreational work—has become fairly well organized on a generally accepted basis. It remains for the health department, first, to secure the direction and articulation of all health education activities, second, to place responsibility definitely on physical instructors for the organization of courses in personal hygiene, and, third, to secure the functioning of all health instruction in the personal lives of the pupils.

Summary.—Of the time allotted to health education in the fourteen centers, 26 per cent is devoted to hygiene and 74 per cent to physical education. Physical education has become stabilized. The variations in practice are due largely to differences of equipment in gymnasium facilities, playgrounds, etc. Hygiene has come into the course of study more recently and as a result of a recognized need for personal hygiene instruction. Responsibility for this work should be placed on physical instructors by making clearer distinctions between the social phases of health instruction as given by social studies teachers, the physiological phases as given by science teachers, and the functional phases as given by physical instructors.

When more definite courses in personal hygiene are developed, a different administration of the time allotment to hygiene may be desirable. The distribution of time allotments on the basis of 26 per cent for hygiene and 74 per cent for physical education suggests, in a time schedule of four periods a week for health education, three periods for physical training (gymnasium, playground, swimming pool, directed games, etc.) and one period for hygiene instruction. This administration of the time will facilitate the use of the comparatively expensive gymnasium equipment by larger numbers of pupils for more periods a week. The weekly period of hygiene instruction can be given in a typical classroom, thereby releasing the gymnasium or swimming pool for other classes. Furthermore, the setting aside of one period a week for health teaching by the physical instructor will result in fixing responsibility and lead to the construction of definite courses in hygiene.

HOME ECONOMICS

The divisions of home economics which are generally incorporated as separate units of instruction in the course of study are foods (cooking) and clothing (sewing). The home economics outline used in connection with this investigation included a third unit, namely, the home and the family. In no center, as is to be expected, is this unit taught as a separate branch with its own time allotment of whole periods. It is a part of the other two units. Thus the time allotments to this third division represent in all instances portions of the time allotments for foods and clothing. This situation will explain two facts which appear in Table XXIII: the limited number of centers reporting for the home and the family and the comparatively limited amount of time allotted to it. The absence of the time allotment in the case of any center is not to be interpreted to mean that the school system does not incorporate this unit in its course of study but rather that the work is so closely connected

with the work in foods and clothing that distinctions of time distribution cannot be made. In the majority of the centers in which reports were made for this division of the subject the time allotment was estimated as a part of foods.

For the purpose of comparing cooking and sewing only in the administration of the course of study the proportional time allotments of the last two divisions of home economics as shown in Table XXIV may be combined. The table would then read as follows: Clothing (sewing): fifth year, 78.6 per cent; sixth year, 54.5 per cent; seventh year, 53.2 per cent; eighth year, 46.1 per cent; ninth year, 39.3 per cent. Foods (cooking): fifth year, 21.4 per cent; sixth year, 45.5 per cent; seventh year, 46.8 per cent; eighth year, 53.9 per cent; ninth year, 60.7 per cent.

The time allotments in the ninth year as reported by the three centers which require home economics in this year are approximately the same for the three divisions. In other words, as the course of study in home economics develops from a limited scope of cooking and sewing in the elementary school and the first years of the junior high school into a broader range of home training courses in the latter part of the junior high school, the course becomes more widely differentiated. Thus distinct units of instruction appear in the course of study which are closely allied with the unit "home and family"—for example, home nursing, care of convalescents, family budgets, home decoration, family marketing, etc. These units are of undoubted value in a home economics course. If general practice places them in the ninth year only on a basis comparable to foods and clothing, the advisability of a required ninth-year course is again apparent. The progressive development of a course in home economics is seriously hindered, therefore, when the course is restricted to the seventh and eighth years. The degree to which home economics courses are expanded beyond the range of cooking and sewing is likely to be far greater in the ninth year than in the two preceding years.

Girls of junior high school age should be assured of receiving the types of home training courses which are included under home and family and which evidently are well adapted to the more mature development of ninth-year pupils. Such units of instruction should not be elective; they deserve recognition in the core curriculum. The most direct way to obtain this recognition would seem to be to make them required units in the ninth-year curriculum. It will be noted that in the case of the three cities which require home economics in the ninth year the home and family unit receives a time allotment equal to that of foods and nearly equal to that of clothing.

Table XXIII shows that the average practice in the fourteen centers is to give far greater emphasis to clothing or sewing than to foods or cooking in the fifth and sixth years. The same practice prevails in the seventh, eighth, and ninth years. In the fifth year only three centers require foods, while clothing is given by eight centers. The three centers which give foods also give clothing. All centers, then, which have fifth year home economics courses include clothing. Home economics courses in the elementary school are introduced, therefore, by elementary sewing in a majority of the fourteen centers. In the sixth year five centers give both foods and clothing; one gives foods only, and two give clothing only. In the seventh year eight centers give both courses; two give foods only, and one gives clothing only. In the eighth year six centers give both courses; two give foods only, and one gives clothing only. As noted, the three centers which require home economics in the ninth year give the three divisions. The practice, therefore, in most centers is to offer a combination of cooking and sewing in all years after the fifth year. For the junior high school this practice involves a minimum of two periods a week for home economics, one period each for foods and clothing. That two periods are only a minimum is shown by the fact that seven centers allow from three to five periods a week for required home economics in the seventh year.

Summary. The varying types of administration of the home economics course lead to two conclusions: first, the home economics course has secured a place in the core curriculum; second, the time allotments, the order of presenting the three divisions of the subject, and the requirement of home economics in the ninth year have not yet been determined.

When home economics is introduced into the fifth year, the general practice is to offer elementary sewing. When home economics is introduced into the junior high school program of studies, both foods and clothing are given simultaneously in most centers. A progressive development of the home economics course to expand the scope of the work beyond foods and clothing into more advanced units of instruction in home furnishing, buying and marketing, textiles, household science, nursing, budgets, etc., demands that home economics be continued as a required subject into the core curriculum of the ninth year.

MATHEMATICS

Arithmetic is the only division of mathematics required in the fifth and sixth years. The extremes in the time allotments of the fourteen centers are 300 minutes a week or 60 minutes a day as the maximum

and 120 minutes a week or 24 minutes a day as the minimum. Either the problem of eliminating the unessential from the arithmetic course of study has not been solved or the introduction of secondary mathematics into the first two junior high school years has resulted in a readjustment of the arithmetic course of study to the extent of making greater demands on the time schedules of the fifth and sixth years.

Further, the varying amount of arithmetic covered in the grades below the seventh year and the variable use of achievement tests, accuracy and speed drills, and other media of economizing time in the arithmetic work of the elementary school may account for the wide extremes of time allotment in the fifth and sixth years. The widespread adoption of general mathematics in the junior high school and the consequent readjustment in the grades immediately below the junior high school should have the beneficial effect of necessitating a reconstruction of the arithmetic course of study and in consequence the introduction of efforts to eliminate non-essentials, to change methods in the interest of economy of time, and to adopt standardized measurements of achievement.

The claim that elementary algebra and intuitive geometry in the seventh and eighth years as part of general mathematics practically amount to the elimination of arithmetic is not substantiated by the average proportional allotment of the mathematics time of all centers to arithmetic in the junior high school grades. The general practice of the fourteen centers is to allot 80.7 per cent of the total mathematics time of the seventh year to arithmetic and 61.6 per cent of the total time of the eighth year. A condition which did not occur in the former administration of first-year high-school mathematics now exists in the persistence of arithmetic to the extent of 17.9 per cent in the ninth year. An average of 72.1 per cent of the total time allotment to mathematics in the fifth to ninth years inclusive is devoted to arithmetic and 27.9 per cent to algebra and geometry. When arithmetic was taught exclusively in Grades 5, 6, 7, and 8 and algebra exclusively in the ninth year, 80 per cent of the total mathematics time in Grades 5 to 9 was devoted to arithmetic and 20 per cent to algebra. There is a total difference of only 8 per cent in the time distribution between the present practice and the former practice. The claim, therefore, that the introduction of general mathematics into the junior high school is practically equivalent to the elimination of arithmetic is not corroborated by the facts, at least of this investigation.

Either elementary algebra or intuitive geometry has been introduced into the mathematics course of the seventh and eighth years in more than

one-half of the fourteen centers. Thus the tendency to adopt general mathematics without serious cost to the former total allotment of arithmetic time is clear. Arithmetic has been distributed through the seventh, eighth, and ninth years, and algebra and intuitive geometry have been similarly distributed. Thus elementary and secondary courses in mathematics are being articulated wholly in the interest of the pupils, who formerly were compelled to suffer an abrupt break between the two and who now by gradual stages of transition are led from one branch of mathematics to another.

The tendency is clear, but the practice is not yet uniform. The variation in the administration of the three divisions of mathematics in Grades 7 and 8 shows plainly the uncertainty which prevails. The problem of articulation is in process of solution, but uniform practice in the articulation cannot be expected without further experiments. The variation in the present practice of the fourteen centers will cause no undue concern to those who are familiar with the problem of articulating elementary and secondary mathematics.

The present stage of the experiment in articulating elementary and secondary courses into general mathematics is revealed in Table XXIV. Arithmetic is a gradually diminishing factor in general mathematics; algebra, on the other hand, is a gradually increasing factor; and intuitive geometry, which receives an average proportional allotment of 16.2 per cent of the mathematics time of the seventh year, receives but 8.6 per cent of the mathematics time in the ninth year. Striking an average for the junior high school grades only, it is found that of the total time allotted to mathematics in the three junior high school years, 54.5 per cent is devoted to arithmetic, 32.4 per cent to algebra, and 13.1 per cent to intuitive geometry. In the former administration of these grades the full time of the seventh and eighth years, that is, 66.7 per cent of the junior high school mathematics time, was allotted to arithmetic and the full time of the first year of the high school, or the ninth year, that is, 33.3 per cent, was allotted to algebra. By this analysis the difference in time allotments to arithmetic between the former practice and the present development of the general mathematics course is 12.2 per cent; algebra receives approximately the same time allotment, and intuitive geometry receives a time allotment approximately equal to the difference between the former and the present practices in time allotments to arithmetic.

The readjustment of the arithmetic course in the elementary school offsets the small proportional loss in time allotment to arithmetic in

the junior high school grades. The junior high school course in general mathematics has made two forward steps: first, the introduction of intuitive geometry and elementary algebra in accordance with the primary purpose of the junior high school to discover the aptitudes of pupils for courses in higher mathematics and to reveal the ability of pupils to pursue them and, second, the articulation of elementary and secondary courses in mathematics.

Fundamentally, the needs of junior high school pupils are the sole reason for this reorganization. By both forward steps these needs have been promoted. Junior high school pupils are afforded an opportunity to discover, before the discovery involves a serious loss of time, whether or not they should elect curriculums which include courses in higher mathematics. The transition from elementary to secondary mathematics is made by gradual and natural stages from arithmetic to algebra and geometry. The former gap caused by abrupt transition between the eighth and the ninth years from elementary to secondary courses of study is thus eliminated through the articulation of elementary and secondary education, which is the chief mission of the junior high school to the public school system.

Summary.—Arithmetic is the only division of mathematics taught in the fifth and sixth years of the fourteen centers. The time allotments in these grades vary from a daily period of twenty-four minutes to a daily period of sixty minutes. The readjustment of the elementary course in arithmetic is probably caused by the reconstruction of the general mathematics course in the junior high school and is likely to develop improved practices in the elementary school, resulting in the economizing of time.

The introduction of general mathematics into the junior high school years has not caused any serious loss in time allotment to arithmetic in these years but has made it possible to include elementary algebra and intuitive geometry in the seventh and eighth years. This readjustment in the junior high school is consistent, first, with the fundamental objectives of the junior high school and, second, with the needs of junior high school pupils who benefit by the long-needed articulation of elementary and secondary courses in mathematics.

SCIENCE

Table XXIII shows clearly that in the organization of the science course of study nature study is placed almost exclusively in the fifth and sixth years and general science almost exclusively in the junior high

school. No other divisions of required science are given in twelve of the fourteen centers. Of the other two centers, Atlanta combines gardening with nature study in Grades 5, 6, and 7 in the proportion of one-third and two-thirds, respectively, and Los Angeles has a combination of agriculture with nature study in the same proportion but in Grades 5 and 6 only. Nature study, therefore, is the predominating type of science in the elementary grades and general science in the junior high school grades. No other required subject shows so large a proportion of 100 per cent distribution of the total time allotment of the subject to one division of the subject in the fifth and sixth years and to another in the junior high school.

The types of science courses in the core curriculum, therefore, have been largely determined. Nature study best adapts itself to the elementary-school pupil who can be taught to observe natural phenomena but who is too immature for interpretative studies. The nature study courses deal largely with plant and animal life. The child of the fifth or sixth grade has an absorbing interest in the phenomena of the plant and animal life about him, and he is capable of receiving training in the observation of these phenomena. This training in purposeful observation becomes fundamental as a background for the general science of the junior high school and for the specialized sciences of the senior high school.

In no other course in the curriculum is there greater opportunity for the training of the powers of observation, both in range of observation and in accuracy of details. Scope and accuracy in the power to observe are educational values of large import; they are indispensable to advanced studies in science. It is possible, therefore, for the elementary school, through the child's instinctive interest in natural phenomena, to train him in the power of extensive and intensive observation and to provide a background of realistic experiences for the more systematic work of later courses. It is, consequently, an indication of an increasing articulation of elementary and junior high school courses that eight of the fourteen centers provide the elementary background courses in nature study.

However, the articulation of the elementary-school course in nature study and the general science of the junior high school is at present only a trend in the development of a continuous course through the three units of the 6-3-3 organization. The articulation has not become an established practice. Only three of the eight centers which include nature study in the elementary curriculum continue a required science

course into the junior high school. In other words, five centers initiate a science course in the elementary school and discontinue it in the junior high school as a required subject.

Again, as in other subject fields, the frequently conflicting practices which the junior high school has inherited from the elementary school and the high school have not yet been adjusted. There is the tendency of the elementary school to make nature study a required course and the tendency of the high school to make science courses elective. In other words, the elementary school initiates a course in natural science which should be continuous through the junior high school and senior high school, at least to the point where other major subjects—mathematics and social studies, for example—become elective courses. But the practice of elective courses in science which the junior high school inherited from the senior high school still prevails and thus invalidates the continuity of a science constant in the junior high school.

The hope of a science constant in the junior high school program of studies is not, however, as discouraging as the lack of articulation between the nature study of the elementary school and the general science of the junior high school would seem to indicate. Science courses in the junior high school have been constructed not on the basis of nature study but on the basis of the specialized sciences of the senior high school and must usually pass through the elective stage before they become part of the core curriculum. The steps in the introduction of natural science into the junior high school seem to be, first, an elective in the ninth year; second, an exploratory and introductory course for the eighth year (six centers give required science courses in the eighth year); third, a still more elementary course in the seventh year (four centers); and the final step which only three centers have taken in the articulation of the required natural science course of the seventh or eighth year and the nature study courses of the fifth and sixth years.

Thus the nature study of the elementary school and the specialized sciences of the high school find a common meeting-ground in the junior high school, and at this point of conjunction all of the problems of articulating elementary and secondary courses of study must be solved. But the junior high school must not be expected to solve the problems without the co-operation of both the elementary school and the high school. Herein is the secret which so frequently baffles all attempts at articulation. By long-continued isolation the elementary school and the high school have constructed separate and unarticulated programs of study. In no subject of the curriculum is this development more evident than in science.

It should, therefore, cause no surprise that the articulation which the junior high school must effect is a difficult problem. Its solution can be promoted by co-operation on the part of those who are constructing nature study courses in the elementary school, elementary natural science courses in the junior high school, and science electives in the senior high school. Furthermore, progress can be made toward articulation by placing the responsibility for the articulation on the high-school teachers and the heads of the science departments.

Both the training and the experience of elementary-school teachers are more limited in science than in any other course of study. The construction and supervision of science courses in the junior high school must come, therefore, largely from those who have been trained for high-school science and who have had experience in science teaching. When once this training and experience have been transferred to the junior high school, the nearer contacts thereby made with the elementary school will promote a more rapid articulation of natural science in the junior high school and nature study in the elementary school. Thus, by gradual development, the continuous chain from nature study in the elementary school to the elective physics and chemistry courses of the senior high school will be forged, and the cumulative results of a carefully graded program of science instruction will justify a science constant in the core curriculum of both the elementary school and the secondary school.

Summary.—Science has two major divisions, as shown by the practice of the fourteen centers—first, nature study in the elementary school and, second, general science in the junior high school. The distinctions in nomenclature will disappear as articulation progresses, and science will be used to designate a continuous course of a science constant through the elementary school and junior high school and into the senior high school, at least as far as other constants are offered.

In the junior high school program of studies natural science should take rank with other major subjects, probably not in time allotments but in progressive development through all three years. The junior high school core curriculum will thus come to comprise six general units of instruction, namely, English, mathematics, social studies, natural science, health, and fine and practical arts.

SOCIAL STUDIES

United States history and community civics are the prevailing divisions of social studies in the elementary-school curriculum. Only one center, Atlanta, gives vocational civics and economic civics in the

elementary course; in each case the work is closely related to the work in history or community civics. The average proportional distribution of time between history and civics is approximately 85 per cent and 15 per cent, respectively.

In the majority of the centers the history course of the fifth and sixth years deals with the historical background of American history and with United States history prior to the constitutional period. There is a particular appeal to the preadolescent, hero-worshipping age of the fifth and sixth years in the periods of discovery, exploration, and settlement and the early colonial and pioneer life. In some centers the history course of the junior high school shows a tendency to begin at the point where the work of the sixth year ends. This completion of a certain proportion of the history course in the fifth and sixth years relieves the junior high school course in history and makes possible the introduction of other divisions of social studies which characterize so generally the reorganization of the junior high school program of studies. The practice of the elementary school to restrict the history course largely to history stories and to biography and abridged elementary texts in United States history is being replaced by an articulation between the elementary school and the junior high school which amounts to a continuous course through the fifth, sixth, and seventh years and, in some centers, the eighth year.

The large average time allotment of 85 per cent to United States history in Grades 5 and 6 can and should be made a part of a progressive development in the history course. It should be noted that in the centers where articulation and continuous development have been established between the elementary school and the junior high school the proportional time allotments to community and vocational civics have been increased. In this articulation lies the hope of adding elementary economics to the present social studies course of the junior high school. This unit receives practically no attention in the junior high school at the present time.

Community civics receives a gradually increasing proportional time allotment—from 14.7 per cent in the fifth year to 54.8 per cent in the ninth year. Of all of the more recent units of instruction added to the social studies course, community civics has been the most generally incorporated with the former history courses and receives by far the largest allotments of time.

Community civics is too recent an addition to the social studies course of study to warrant an expectation of a continuous and articulated course

through Grades 5, 6, 7, 8, and 9 as has been noted in the case of history. A later table reveals an overlapping of units of teaching between the elementary and junior high school grades which seems to result in an unfortunate waste of instructional time but which may be both necessary and desirable until experimentation clearly demonstrates how the units of teaching should be distributed. In some centers a purpose is evident to articulate the community civics course in a continuous development through the elementary and junior high school grades. Detroit has made the most significant progress in this respect and under the leadership of the supervisor of social science is developing continuity and articulation through the whole social science field.

In many centers the course in community civics has been constructed from two almost independent points of view, namely, the elementary school and the junior high school. Courses of study are, as a result, independently developed and administered, and the consequent lack of continuity is evident in the overlapping of the units of teaching. However, the investigation discovered not only in Detroit but in other centers a purpose to articulate the practices of the elementary school and the junior high school in the teaching of both community civics and other social science courses. The isolation of the elementary-school and junior high school courses should not extend beyond the period necessary to demonstrate by experience which units of teaching are suited to the two schools. The present duplication of time and effort will disappear as the consciousness of the wasteful practice of needless overlapping comes by experience to both elementary-school and junior high school teachers.

Vocational civics is finding its way into the core curriculums of the eighth and ninth years. It should be recalled that Tables XXIII and XXIV are restricted to the required subjects. Many elective courses in history, community civics, and vocational and economic civics do not enter into the percentages given in Table XXIV. The wide range of elective courses in social studies was discussed in connection with Table XXII. Vocational civics deserves recognition in the core curriculum of the junior high school far beyond its present adoption. The tendency to make vocational civics a part of the required social studies constant is evident in the average proportional time allotments of the eighth and ninth years and in the fact that five of the eleven junior high school centers include it in some one or more of the junior high school years.

The mission of the junior high school is to reveal to pupils, first, through general exploratory courses their own aptitudes and interests;

second, the educational possibilities for the training of their aptitudes and the development of their natural interests; and, third, the vocational opportunities in which the aptitudes and interests when revealed and developed may find proper and useful employment. On vocational civics and other similar guidance work of the junior high school falls the burden of the third objective. Vocational civics, therefore, is an integral part of a social science course, but, even more important, it is fundamental to the purposes of the junior high school.

After revealing to an early adolescent his aptitudes and interests and the educational possibilities for the training of his endowed powers, to deny him a vision of the vocational opportunities into which he will fit—in other words, to refuse him vocational civics—is to rob him of the motivation which will condition his educational progress. The junior high school must be more than a finding school. It has an even greater purpose—to become an educational motivating agency; hence its general exploratory courses to reveal aptitudes, the articulation of elementary and secondary courses of study to reveal the ability to pursue higher education, and the guidance and vocational civics courses to furnish the motivating impulse of vocational ambition.

The fact that economic civics appears as such a minor division of the social studies course is due to several conditions. First, it has been forced to await the development of the courses in community civics and vocational civics. Second, there has been very limited experimentation in the senior high school in the teaching of elementary economics, which, like other new units of instruction in the senior high school program of studies, could be readjusted to the junior high school. Third, several units of teaching which properly belong to economics have been incorporated into the community civics course. In other words, there is a consensus of opinion that economic civics as a distinct division of social studies is unnecessary but that it should be included as a part of the community civics course. Undoubtedly, this last point of view is wholly justified, and all present divisions of social studies should be assimilated into a general social science course of study.

The tendency to fuse more or less isolated divisions of social studies into social science has been discussed in connection with Table XXII. The transitional step of developing each isolated division to the point where experimentation can determine the selection of units of teaching from each division for a fusion of all divisions into social science has been and is being taken in connection with history, geography, community civics, and vocational civics, but unfortunately this transitional step is

not taken for economic civics. The result is a wholly disproportionate emphasis on the important factors of industrial and economic life. The traditional phases of governmental civics, the more recent phases of social and community relationships, and to a limited degree vocational civics have largely crowded out of social studies courses the economic and industrial phases. A transitional stage of developing economic civics as a distinct division of social studies should be passed through. Thus a true evaluation can be reached of such vital phases of social science as production, distribution, transportation, relation of capital and labor, and economic principles, laws, and customs.

Economic civics conditions every individual and all community life. This division of social studies deserves recognition in social science courses far beyond the present limited and incidental attention given to it. It has not and doubtless will not receive this recognition until the transitional step has been taken to determine its value as compared with other social studies courses and particularly to determine materials and methods in adapting courses in economics to the elementary school and the junior high school.

Summary.—The distribution of the units of teaching in United States history as a continuous course through Grades 5 and 6 and the first year or two of the junior high school will relieve the social studies course of the junior high school and thus permit the introduction of courses in community, vocational, and economic civics.

Community civics ranks second to United States history in time allotments and in the present development of its materials of instruction. The articulation of the community civics courses in the elementary school and the junior high school has not advanced to the point reached by the articulation of the history courses. There is an evident consciousness of the need of the articulation, however, and deliberate and well-planned efforts are being made to effect it.

Vocational civics is finding a place in the core curriculum of the junior high school. The inherent values of vocational civics in attaining fundamental junior high school objectives will win for this division of social studies an increasing proportion of time allotment. Vocational civics is likely also to secure a share in the guidance program of the junior high school. The chief deterrent to a more rapid development of vocational civics is the present lack of courses of study and suitable textbooks.

Economic civics as distinguished from all other courses in social studies has not passed through the transitional stage of a distinct course of study. Consequently, the relative values of such important units

of teaching as industrial production, distribution, transportation, and economic practices have not been determined. Elementary economics is incidental to other courses of study and receives the inadequate recognition which invariably characterizes incidental development. The materials and methods of teaching in economic civics must be determined before this division of social studies can be incorporated with the social science courses.

The most direct way to the proper recognition of economic civics is through the same development which won for community civics and is now winning for vocational civics just recognition in the reconstructed social science courses. The transitional stage of a distinct and more or less isolated development of materials and methods has brought the courses in community and vocational civics to their present general adoption in the core curriculum. A similar stage of development and evaluation of the materials and methods in economic civics may have the unfortunate result of delaying the fusion of all social studies into general social science, but it will have the fortunate result of securing recognition for economic civics commensurate with its important values and also of securing a more balanced social science course.

INDUSTRIAL ARTS

The wide variations in practice in the administration of the industrial arts course of study have been discussed in connection with Table XXII. Table XXV reveals the same wide range of practice both in types of courses and in time allotments to all grades. Naturally, the variation is not so great in the elementary school where long continued experimentation with manual training has developed uniformity of practice. Nine of the fourteen centers include some type of industrial arts in the fifth and sixth years.

There are various designations for the types of work given, but all types are closely related to the course in manual training which is the original type generally found in the elementary school. All courses are based largely on woodwork with varying stress on mechanical drawing and home mechanics. In most cases only one course is offered in the fifth and sixth years, and this course is continuous through both years. Eight of the nine centers allot one period a week of varying length (from 60 to 150 minutes). Kansas City requires three periods of a total of 180 minutes a week in both the fifth and the sixth years, but it also makes industrial arts elective in the seventh and ninth years. The practice, therefore, in the elementary school is nearly uniform as to

TABLE XXV

NUMBER OF MINUTES A WEEK ALLOTTED TO THE SUBJECT DIVISIONS OF INDUSTRIAL ARTS

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Grade 5:														
Manual arts											75			
Manual training							90	180				75		
Manual training and home mechanics		90												
Manual training and mechanical drawing			60			90								
Wood shop									90					
Grade 6:														
Bench work in wood							90							
Manual arts											150			
Manual training							90	180				75		60
Manual training and home mechanics		90												
Manual training and mechanical drawing			60			90								
Wood shop									90					
Grade 7:														
Applied science												180		
Electricity		170*											130*	
General shop											180†			
Household mechanics							240							
Manual training and mechanical drawing			60											
Mechanical drawing				90‡		50§	60							
Metal-work													130*	60
Option of special shops‖									210	275				
Woodwork (manual training)		170*		180	100	200**							130‡	60

* Quarter-year course.

† A second course of 120 minutes is also offered.

‡ Half-year course. § Twelve-week course. ‖ See Table XXII. ** Twenty-six week course.

TABLE XXV—*Continued*

	Atl.	Ber.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
Grade 8:														
Auto mechanics	X*	.....	X	.....	.....	.....	360†	X	.....	.....	.....	.....	.....	.....
Electricity	X	.....	X	.....	.....	.....	360†	X	.....	.....	.....	.....	.....	.....
Machine shop	X	.....	X	.....	.....	.....	360†	X	.....	.....	.....	.....	.....	.....
Mechanical drawing	X	.....	X	90	.....	60‡	120§	X	.....	.....	.....	.....	.....	.....
Metals (sheet metal)	X	170	X	.....	.....	.....	.....	X	.....	.....	.....	.....	.....	60
Option of special shops‖	X	.....	X	180	.....	.....	.....	X	210	275	240**	180	.....	.....
Printing	X	.....	X	.....	.....	.....	360†	X	.....	.....	.....	.....	.....	.....
Woodwork (manual training)	X	.....	X	.....	100	190††	.....	X	.....	.....	.....	.....	.....	60
Grade 9:														
General shop	.....	.....	225	.....	.....	.....	60	.....	.....	.....	.....	.....	.....	.....
Mechanical drawing	.....	.....	.....	.....	.....	.....	180‡‡	.....	.....	.....	.....	.....	.....	.....
Option of special shops‖	.....	.....	.....	.....	.....	.....	.....	.....	210	.....	240**	180	.....	.....

* X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

† Quarter-year course.

‡ Four-week course.

§ A second course of 60 minutes is also offered.

‖ See Table XXII.

** A second course of 120 minutes is also offered.

†† Fifteen-week course.

‡‡ Two other courses, one of 60 minutes and one of 120 minutes, are also offered.

type of course, its continuous development through the fifth and sixth years, and the time allotment of one period a week; but the time allotment varies in the number of minutes a week from a minimum of 60 minutes to a maximum of 180 minutes.

Eight centers which require industrial arts courses in the elementary school continue the requirement into the seventh year; one center makes the seventh-year work elective; four centers first introduce industrial arts into the curriculum in the seventh year. In other words, all but one of the centers require industrial arts in the seventh year.[1] The type of course required in the seventh year is different from the type required in the fifth and sixth years in all but one center. Of the four centers which introduce industrial arts in the seventh year, two require woodwork and mechanical drawing; one offers an option of several special shops, and one gives a combination of woodwork, electricity, and metal-work.

The general practice, therefore, is to require a more general type of industrial arts course at the beginning of the junior high school than in the fifth and sixth years. This practice is consistent both with the principle of the progressive development of industrial arts in the elementary and junior high schools and with the primary purpose of the junior high school to explore the aptitudes of its pupils before choices in elective subjects are offered.

All but one of the centers increase the time allotment in the seventh year both in the total number of minutes and in the number of periods a week. The range of variation in the time allotments is from one to five periods a week and from 60 to 300 minutes a week. As pointed out in a previous discussion, industrial arts has won a place in the junior high school program of studies, but neither the type of course nor the time allotment has been definitely determined. Some tendencies, however, are evident: eight centers expand the course in woodwork to include metal-work, general shop, electricity, applied science, household mechanics, etc.; of these eight centers, two give an option of special type shops, and six give a combination of courses variously designated as general shop, etc.; further, the plan to give industrial arts a more prominent place in the core curriculum is shown by the increased time allotments.

The progressive development of the industrial arts course through the three years of the junior high school is practically general in the four-

[1] Atlanta includes industrial arts in its new junior high schools opened in September, 1923.

teen centers. This becomes clear in a comparison of the types of courses required in the seventh and eighth years. In the eighth year only two centers give courses devoted exclusively to woodwork; one gives a combination of woodwork and metal-work; one gives a course devoted exclusively to metals; and six give options in special type shops. This practice also is consistent with the progressive development of the junior high school industrial arts course and with the purpose of trying out the aptitudes of pupils. General practice, therefore, in the fourteen centers favors a required course in industrial arts in the seventh and eighth years, an increase in time allotments, and a progressive and gradually expanding type of shopwork.

Table XXV reveals the unfortunate result in the ninth year of making the last year of the junior high school a part of the senior high school so far as accrediting relations with the colleges are concerned. Only five centers continue industrial arts as a part of the core curriculum. As so frequently shown in connection with other subjects in the curriculum, the principle of continuity in the progressive development of a junior high school course of study must be sacrificed under present conditions. The undemocratic principle of shaping the core curriculum in the junior high school, which compulsory education laws require all pupils to attend, to meet the needs of the few who later attend college is harmful both to the pupils who leave school in the junior high school period and to the pupils who continue into higher institutions. Both groups are deprived of the valuable social influences of a large core curriculum of common subject interests.

Further, many subjects which are a common need to both groups cannot be organized or administered as consistent and progressive units of instruction in the junior high school program of studies under the present widespread practice of making required subjects of the seventh and eighth years elective in the ninth year. The core curriculum of the junior high school is being steadily determined in the seventh and eighth years of the junior high school, but the core curriculum of the junior high school as an integrated unit of public school administration cannot be determined until the junior high school is relieved from the domination of college-entrance requirements.

Summary.—Industrial arts in the fifth and sixth years in the general practice of the fourteen centers takes the form of manual training or woodwork for one period a week, approximately 90 minutes in length.

Industrial arts in the seventh and eighth years is expanded to include both woodwork and metal-work and takes the form of a general shop

course, household mechanics, applied science, or an option of several type shops.

There is a continuous and progressive development of the required industrial arts course through the fifth, sixth, seventh, and eighth years. This progressive development continues into the ninth year in five centers but is abruptly halted in the other centers by a change to elective subjects.

The junior high school program of studies is in desperate need of immediate relief from college domination which can be most readily secured by reducing college-admission requirements from sixteen to twelve units, that is, restricting accrediting relations to the senior high school.

PENMANSHIP

The questionnaire in penmanship, unlike the questionnaires in all other subjects, included Grades 1-4 with Grades 5-9. The report, therefore, is complete for both the elementary school and the junior high school, as shown in Table XXVI. The average time allotments

TABLE XXVI

NUMBER OF MINUTES A WEEK ALLOTTED TO PENMANSHIP

Grade	Atl.	Bir.	Cle.	Dec.	Den.	Det.	K.C.	L.A.	Okm.	Pit.	Roc.	St. L.	Som.
1	75	50	100	50	75	100	50*	75	50	100	50	80	75
2	75	50	100	75	75	100	75	75	50	100	75	80	75
3	75	75	75	75	100	75	60	75	75	100	75	80	100
4	75	75	75	75	100	75	80	60	75	100	75	100	100
5	75	75	75	75	100	75	80	60	75	100	75	100	100
6	75	75	75	75	100	75	60	60	75	100	75	100	100
7	75	60	....	50	80	75	125†	200*	135‡	50	60	60	60
8	X§	X	....	50	80	75	X	200	135‡	50	30	60	60
9	75	....	....	100	....	....	....	200	....	....	....	....	....

* Half-year course.

† Elective.

‡ Quarter-year course.

§ X means that the school system is organized on the 7-4 plan and does not include an eighth grade.

in number of minutes a week are as follows: first grade, 69.6 minutes; second grade, 77.3 minutes; third grade, 80.0 minutes; fourth grade, 81.9 minutes; fifth grade, 81.9 minutes; sixth grade, 80.4 minutes; seventh grade, 69.1 minutes; eighth grade, 71.0 minutes. When penmanship is offered in the ninth year, it is, in most cases, either part of the commercial curriculum or an elective for those pupils deficient in penmanship.

All of the centers with two exceptions (there are no returns for Berkeley) continue penmanship as a required course through the eighth year or in the case of the 7-4 school systems through the seventh year. In over one-half of the centers there is a reduction in time allotments in the junior high school. A few centers provide for the exemption of pupils from penmanship in the junior high school on the attainment of certain standards. The quotations from the teachers' reports which follow indicate the practice adopted in exempting pupils. The tendency to exempt junior high school pupils from both spelling and penmanship on satisfactory evidence of achievement has to a significant degree manifested itself in the administration of the junior high school program of studies.

With the wide use of achievement tests and with the general acceptance of standards of achievement, the trend toward relieving pupils of unnecessary attention to work already accomplished will contribute to the solution of many problems in the present administration of the time schedule.

Certain devices for providing time allotments in penmanship for those pupils who need further practice and instruction are noted in the quotations which follow. Adaptation to individual needs has long been a desideratum in the junior high school. Both the practice of exempting pupils who have satisfied attainment standards and the practice of providing special classes for those who have not reached these standards are practices which reveal practical adaptation of requirements to individual needs.

The junior high school program of studies has been so enriched that the pupils capable of benefiting to the greatest extent therefrom should not be deprived of the opportunity by the persistence of traditional practices when these practices may be modified by widely accepted measurements of achievement. Penmanship, particularly, is one of the traditional subjects which has been taught through the eight years of the elementary school and which may, through the recent development of tests and measurements, be dropped from the core curriculum of the junior high school except for the few pupils who need further instruction.

The following comments made in the teachers' reports will be of interest to those concerned with the present status and the probable development of penmanship in the junior high school:

Atlanta.—Pupils are exempted from penmanship when fair writing has become fixed in the grades beyond the first year of the high school [eighth school year in a 7-4 school system]. Three years ago we enlisted the co-operation

of the ——— Pen Company to the extent that they gave as a prize in each grammar-school grade, beginning with the third, a fountain pen for the greatest improvement in penmanship during the year. The winners were determined in the following manner: an article seventy-five words in length was written by every pupil. The same article was written at the close of the school year. The two copies made by each pupil were fastened together. Judges were appointed to determine in each class the pupil who had made the greatest improvement between the first and the second copies.

Birmingham.—Penmanship is correlated with English in phonics, spelling, and all written papers, practice on titles to be used in composition, instruction on forms to be used in composition books, addressing envelopes, etc.; with history—writing lessons are built around the names of great men and important incidents in history; with geography—writing lessons are given on names of sections, cities, states, and products; where projects are being prepared, the writing period is given over to the writing involved in the project. To stimulate interest progress pins and certificates are awarded. We enter papers, spelling blanks, and composition books in the state fair for prizes. We have an exhibit for the Alabama Education Association meeting. Good papers are displayed in individual classrooms.

Cleveland.—Penmanship is correlated with the written work of other subjects through the correction of errors with stress on the emphasized features of each grade; such exercises become "applied penmanship." Measuring models are supplied by the penmanship department with grades of 90, 80, etc. To stimulate interest, the measuring models are employed, also exhibitions, special decorations such as stars, and other awards.

Decatur.—In order to stimulate interest and enthusiasm we often use the two-group plan which permits the teaching of advanced pupils in one group and those who find the work difficult and are in need of more basal training in the other group. Penmanship practice is frequently carried on with music to obtain rhythmical count for various exercises—for example, all capital and small letters—to conserve the vitality of the teacher by eliminating much of the counting, and to enable the teacher to give more attention to position, movement, and form while the lesson is in progress. We exempt pupils temporarily if they have earned the elementary-school penmanship diploma and permanently when they have earned the high-school penmanship diploma.

Denver.—We aim toward appropriate speed for each grade; Starch's standard is used. We exempt temporarily in the sixth, seventh, and eighth years when "A" quality on the Denver Handwriting Scale is secured. The exemption continues and becomes permanent when all written work is kept up to the standard. During the regular penmanship period drill is given on figures in mathematics and on the written work in English, history, and geography. Pupils compare the written work with the Denver Handwriting Scale. At the close of each term the teachers from Grade 3A to Grade 8A send specimens of the writing of their pupils to the supervisor of penmanship. Each

teacher places her O.K. on the papers she considers worthy of certificates. The supervisor examines the papers and by combining judgments grants certificates to those who have reached the "A" standard of the Denver Handwriting Scale. In Grades 3–5 movement is the basis of award; in Grades 6–8, proficiency.

Detroit.—In all grades the course offers opportunities to equip the child with a means to help himself, to progress at his own rate, and to grow in self-direction, self-control, and self-appraisal. Follow-up work is done in all subjects; pupils are stimulated to maintain standards of good writing. The standard of exemption in the eighth grade is 70–80 on the Ayres scale, and the exemption is permanent when the quality of writing continues good in all of the writing done. On completing the series of lessons in the course the pupils are given small certificates which state the rate and quality attained.

Kansas City.—Penmanship is elective in the seventh year for two and one-half periods a week of 50 minutes each or 125 minutes a week. A special penmanship teacher is in charge of two groups. These two groups alternate two days one week and three days the next. Poor writers are urged but not required to enrol. Speed tests and quality tests are employed; comparisons are made with standards, and the rate of improvement and the quality are noted.

Los Angeles.—In all grades correlation with respect to legibility and position is sought in all written work in English and the social studies. Pupils are exempted in the ninth year on the attainment of a standard of 80 per cent on the Zaner scale. Interest is stimulated in Grades 7, 8, and 9 by exhibitions of penmanship and by the awarding of penmanship certificates.

Okmulgee.—Correlation is secured in connection with composition and story-writing and by exhibition of superior work. There are many projects [Okmulgee's Project Plan Bulletins are most suggestive] in which good penmanship is stressed.

Pittsburgh.—In the grades the teacher inspects and observes written work in all subjects and suggests improvement in position and form. Exhibits of handwriting are made in all grades, and measurement tests are given in Grades 5–7. Certificates are used in the eighth year. In the junior high school ratings are given on all written work.

Rochester.—Special penmanship teachers are employed in the junior high school. Pupils are rated solely on their daily written work in other subjects. A local investigation among business men has been conducted to determine the kind of writing best suited to business purposes. A system of awards—stars; improvement certificates; green, red, and gold seal certificates; and penmanship pins—has done much to stimulate increased proficiency. In the junior high schools these awards are made in a penmanship assembly each semester.

St. Louis.—Pupils are exempted temporarily for a period of five weeks when the quality of daily writing is equal to or better than the median of the scale. Permanent exemption is granted in the seventh and eighth years after

several periods of temporary exemption. An investigation to determine the kind of writing best suited to business purposes resulted in a modification of the standards previously established by the schools. A part of the time devoted to the writing lessons is employed to correct errors detected in the daily written work in position, movement, size, spacing, and form.

Somerville.—The penmanship work is done by the grade teachers under the supervision, approximately once a month, of the penmanship supervisor. Correlation with the written work of other subjects is secured by the grade teacher's comment on the method used and the result attained. Awards are given in Grades 1–6, and class ratings are given in Grades 7–8. There is no penmanship in the ninth year except in the commercial curriculum.

Twelve of the fourteen school systems reported on the description of the penmanship course and the emphasized features. The reports are here summarized. The figures indicate the number of the twelve centers in which the particular feature applies or is stressed.

Description of course.—Muscular movement: first grade, 4; second, 10; third, 11; fourth, 12; fifth, 12; sixth, 12; seventh, of 10 centers requiring penmanship, 10; eighth, of 8 centers requiring penmanship, 8. Blackboard writing: first grade, 11; second, 7; third, 2. Finger movement: first grade, 1; second, 2.

Emphasized features.—Position: first grade, 6; second, 10; third, 10; fourth, 11; fifth, 8; sixth, 7; seventh, of 10 centers, 6; eighth, of 8 centers, 3. Size: first grade, 6; second, 8; third, 5; fourth, 3; fifth, 6; sixth, 5; seventh, of 10 centers, 6; eighth, of 8 centers, 5. Freedom: first grade, 7; second, 6; third, 10; fourth, 9; fifth, 7; sixth, 8; seventh, of 10 centers, 8; eighth, of 8 centers, 6. Form: first grade, 7; second, 6; third, 6; fourth, 10; fifth, 11; sixth, 12; seventh, of 10 centers, 10; eighth, of 8 centers, 7. Speed: first grade, 1; second, 1; third, 2; fourth, 5; fifth, 5; sixth, 5; seventh, of 10 centers, 3; eighth, of 8 centers, 4.

CHAPTER VII

UNITS OF TEACHING

This chapter, the final chapter of the report, carries the analysis one step farther than it has been carried in the earlier chapters. The units of teaching into which the courses may be subdivided are here compared with reference to the frequency with which they are taken up in the various centers and with reference to the proportional time which they occupy. By the term "unit of teaching" is meant one group of topics which can be taught in a closely related series of class exercises, as, for example, all of the discussions in English grammar which relate to sentences or all of the items in geography which relate to Africa.

These units of teaching were more or less arbitrarily selected. In the selection, however, attention was given to the usual or common practices of today as revealed in the classroom procedure adopted by progressive teachers. Exceptional practices not generally found in school systems were disregarded.

In order that the units of teaching should reflect as fully as possible the best practice, the writer enlisted the co-operation of experienced supervisors and teachers with whom he had been associated and in whose judgment he had confidence. Further, the outlines prepared were subjected to the criticism of a number of experts before they were finally duplicated for the use of the classroom teachers in the fourteen school systems.

The tables of results presented in this chapter are made up on the basis of the units of teaching arrived at by the methods described. Space does not permit the reproduction of the complete forms used by the teachers in the fourteen centers. For those readers who may be interested in the materials by reason of a desire to compare the technique of this investigation with the technique of similar investigations, a few sets of the blanks have been preserved. The writer will be glad to lend to those who are interested a complete set of the outlines, report forms, and special questionnaires.

The returns from the various centers are by no means complete, and in some instances the statements made are of such a character that it was difficult to tabulate them. The tables may, however, be relied upon as representing fairly well the general tendencies of school practice in the cities investigated.

No separation has been attempted in this chapter of constants and electives. It sometimes happens that the same general subject is given as both required and elective work. The combination of all teaching time, whether in constants or electives, as the basis for calculation of proportional time allotments results in figures in this chapter which are not directly comparable to those reported in earlier chapters. Discrepancies will accordingly be found between the figures in chapters iv–vi and those in this chapter.

Beyond reporting the figures in tables, this chapter will not attempt to present the practices of the schools with regard to the units of teaching. The variations are so striking in quantity and general character that the case is proved by the figures without comment. Especially is Table XXX impressive as showing how widely the American schools have diverged from one another.

In all tables where percentages are given to represent the proportional distribution of time allotments the percentages are based on the positive cases, that is, on the number of centers reporting, whether this number is fourteen or any part of the total.

Table XXVII shows that the different cities arrange the instruction in art and music in the various grades on plans which are strikingly at variance.

Table XXVIII gives the proportional distribution of the time allotments for all centers to the units of teaching, using the total time given to a subject in a semester as the basis of calculation. It will be noted that in most cases the percentages are computed separately for the two semesters of each grade. An average of the two semesters will readily give the practice for a whole grade.

In Table XXIX the time allotments of each unit of teaching are given in terms of the percentage of the total time devoted to the unit of teaching in each semester in Grades 5 to 9. The relative emphasis on a unit of teaching in a given semester is thus indicated.

Table XXX shows variations in practice in the administration of the units of teaching. The divergences of present practices revealed in this chapter offer final and convincing proof of the universal need of a scientific reconstruction of the curriculum. The primary objective of this investigation is thus realized in that the results contribute convincing evidence of the need of a comprehensive and national program of scientific curriculum reconstruction. It is quite unthinkable that all of the practices shown to be in use even in these conspicuous centers are equally effective. Variation has gone too far to be either normal or acceptable.

TABLE XXVII

SUMMARY OF THE REPORTS CONCERNING THE ART AND MUSIC COURSES*

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
Description of art courses:					
Art applied to commerce and industry	5	5	6	5	4
Art applied to costume	6	6	4	5	4
Art applied to home	11	11	9	8	5
Expression and technique	9	8	8	8	5
General appreciation	14	14	10	8	6
Taste and general culture	13	13	10	8	6
Emphasized features of art instruction:					
Basketry	5	5	5	6	6
Batik	3	3	3	3	4
Bookbinding	.....	1	2	3	3
Civic beauty design	3	3	1	2	2
Color study	9	9	8	7	5
Commercial art	3	4	4	4	4
Costume design	6	5	2	2	2
Decorative design	10	10	8	7	4
Drafting	.....	.....	.....	.....	1
Enameling	.....	.....	4	4	4
Form decoration	2	2	3	3	1
Illustration	9	8	5	4	2
Industrial design	1	2	2	2	4
Lamp-shade design	1	1	3	3	3
Leather work	.....	.....	1	2	2
Lettering	11	11	7	7	5
Linoleum block	3	3	9	8	8
Memory drawing	8	8	6	3	4
Metal work	1	1	2	3	3
Modeling	4	4	9	8	8
Nature drawing	11	11	8	7	3
Object drawing	11	11	8	6	5
Pose drawing	5	5	1	.....	2
Pottery	1	1	.....	.....	.....
Practice of design	9	9	7	7	4
Stenciling	4	4	8	7	8
Still life	8	8	6	4	2
Structural design	5	5	3	4	4
Theory of design	6	7	4	3	5
Weaving	5	5	2	2	2
Wood-block printing	2	2	1	1	1
Woodwork	1	1	.....	2	2
Emphasized features in the required courses in music:					
Appreciation	5	5	5	3	3
Elementary theory	8	7	7	7	7
Interpretation	9	9	10	9	8
Sight reading	13	12	12	10	5
Song singing	9	10	10	9	8
Voice management	7	7	9	7	6
Required music credited	4	4	5	4	5
Required music not credited	8	8	8	7	4
Elective music credited	1	1	4	3	8
Elective music not credited	8	8	8	7	5

* The figures in the table refer to the number of centers which checked the various items.

TABLE XXVIII

TIME ALLOTMENTS OF EACH SEMESTER DISTRIBUTED PROPORTIONALLY TO THE UNITS OF TEACHING*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
English (grammar):											
Sentence	36.6	33.1	30.4	19.4	24.0	12.9	7.7	3.7	14.0	17.2	18.0
Parts of speech	40.8	51.2	35.6	26.1	20.0	17.6	6.0	7.1	19.7	6.2	18.9
Nouns	5.7	2.6	13.8	14.1	10.2	5.2	21.9	3.7	5.9	8.9	9.6
Pronouns	6.9	6.9	6.4	13.1	22.2	5.9	25.9	2.3	8.1	7.5	11.4
Adjectives	2.6	6.2	3.3	4.3	4.6	4.6	2.8	10.2	4.5	3.6	4.7
Adverbs	3.1	.....	2.8	1.9	4.3	4.5	1.9	7.7	4.1	3.6	3.8
Prepositional phrases	.....	.....	3.7	10.2	4.8	12.1	5.3	3.0	4.5	6.2	6.0
Verbs	4.3	.....	4.0	5.4	7.1	15.5	17.6	18.0	12.9	26.2	12.7
Clauses	.....	.....	.....	5.5	1.1	19.3	9.7	25.1	13.0	9.3	9.4
Structures for varying expression	.....	.....	.....	.....	1.7	2.4	1.2	19.2	13.3	11.3	5.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Geography:											
Local district	3.0	2.7	2.0	.4	5.5	1.8	3.2	.....	.....	.....	2.6
Life in the state	4.1	2.7	2.0	1.8	9.7	3.2	12.6	.....	.....	.....	4.3
United States	43.7	15.4	19.0	25.0	13.5	18.3	22.3	.....	.....	.....	22.8
World as a whole	27.6	35.1	11.5	23.1	20.2	15.0	22.9	.....	.....	.....	22.4
Africa	.....	.....	4.2	8.8	3.8	6.0	.....	.....	.....	.....	3.6
Asia	.....	.4	5.8	13.0	4.5	12.2	.....	.....	.....	.....	5.5
Australia, etc.	.....	2.2	.....	5.2	3.1	9.8	.....	.....	.....	.....	2.9
Europe	.....	.....	33.4	15.5	18.1	9.3	.....	.....	.....	.....	12.6
North America other than United States	7.7	18.1	2.1	1.7	.....	.....	.....	.....	.....	.....	4.9
South America	.....	17.3	9.4	.....	.....	7.2	.....	.....	.....	.....	5.3
General geography†	13.9	6.1	10.6	5.5	21.6	17.2	39.0	.....	.....	.....	13.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....	.....	100.0

* The percentages were obtained as follows: (1) The total of all of the time allotments to a given unit of teaching was secured for each semester; the total for the first unit of teaching in grammar in Grade 5-1 is 1,056 minutes; in Grade 5-2, 961 minutes, etc. (2) The sum total of the total time allotments to all units of teaching in each subject was secured for each semester; the sum total for all units of teaching in grammar in Grade 5-1 is 2,890 minutes; in Grade 5-2, 2,900 minutes, etc. (3) The ratio of the total time allotment for a unit of teaching in a given semester to the sum total for all units of teaching in the subject is the average proportional distribution of the total time allotment of the given semester to the respective unit of teaching; the ratio of 1,056 minutes, the total for the first unit of teaching in grammar in Grade 5-1, to 2,890 minutes, the sum total for all units of teaching in grammar in the same semester is 36.6 per cent, which is the percentage of the total grammar time in Grade 5-1 devoted to the first unit of teaching.

† General geography includes physical, mathematical, regional, economic, commercial, industrial, and historical geography.

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Health:											
Hygiene:											
Health habit formation	21.9	17.0	17.7	11.5	14.7	8.6	10.7	7.7	11.1	8.6	12.9
Health information	10.8	12.5	9.9	10.3	8.0	9.3	10.0	6.7	6.3	3.9	8.7
Health ideals	3.2	1.5	1.4	2.0	2.7	2.8	1.8	1.3	1.2	.3	1.9
Attitude of individual responsibility	2.3	1.7	2.2	2.7	3.4	2.7	2.2	2.9	.6	.2	2.1
Physical education:											
Formal work	17.3	18.8	19.3	18.8	26.2	25.8	28.0	28.6	28.7	30.4	24.2
Swimming	2.5	2.8	2.8	2.5	1.0	3.5	.....	3.4	1.8	5.1	2.6
Rhythmic work	12.8	14.0	14.3	15.4	8.3	10.7	8.1	11.6	9.3	13.0	11.7
Play and games	12.1	13.0	13.3	16.0	12.6	12.7	11.8	12.5	12.5	13.9	13.1
Highly organized games and athletics	9.4	10.3	10.5	13.3	17.1	18.5	19.9	18.4	21.9	18.1	15.8
Organized recess	7.7	8.4	8.6	7.5	6.0	5.4	7.5	6.9	6.6	6.5	7.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Home economics:											
Home and family:											
Home	5.7	6.8	5.9	5.0	5.0	6.9	8.8	4.7	5.5	5.4	6.0
House	1.4	1.4	6.3	4.1	1.1	1.0	6.2	6.3	3.7	4.8	3.9
Family	2.9	2.7	2.9	3.6	1.7	2.6	1.7	4.1	7.4	5.6	4.2
Foods:											
Meal planning, etc.	2.9	24.7	36.2	36.3	32.3	41.6	21.8	32.8	30.6	26.2	29.6
Food care, etc.	.....	.....	5.0	4.8	6.9	7.4	8.7	10.0	4.0	3.2	5.6
Food industries	.....	.....	3.2	2.1	3.8	2.9	3.8	1.7	5.2	1.8	3.0
Clothing:											
Ready-made articles, etc.	9.2	9.2	11.3	9.5	4.7	7.9	1.3	9.1	2.4	3.3	4.9
Care, repair, etc.	8.5	2.2	1.1	3.5	14.3	6.0	15.9	4.0	2.5	4.6	6.8
Construction, etc.	67.1	50.8	27.0	28.9	27.5	21.6	28.8	25.3	35.5	39.9	32.8
Clothing industries	2.3	2.2	1.1	2.2	2.7	2.1	3.0	2.0	3.2	5.2	3.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Latin:											
Vocabulary	.....	.....	.....	.....	16.0	8.7	12.0	11.0	12.3	11.8	11.7
Grammar	.....	.....	.....	.....	12.0	13.7	12.3	11.5	11.9	10.2	11.5
Forms	.....	.....	.....	.....	12.0	16.4	14.2	15.7	14.8	10.5	13.6
Latin to English (prepared)	.....	.....	.....	.....	24.0	16.4	12.3	14.3	20.1	20.7	18.1
Latin to English (sight)	.....	.....	.....	.....	4.0	8.2	7.9	9.0	10.1	14.5	10.7
English to Latin (prepared)	.....	.....	.....	.....	20.0	13.7	11.3	11.3	13.6	14.4	13.3
English to Latin (sight)	.....	.....	.....	.....	2.0	15.8	8.2	6.9	6.6	6.5	7.5
Relation of Latin to English	.....	.....	.....	.....	8.0	4.4	14.5	12.6	6.4	6.4	8.4
Relation to other foreign languages	.....	.....	.....	.....	.....	.5	1.9	1.7	.8	1.0	1.1
Roman history	.....	.....	.....	.....	2.0	2.2	5.4	6.0	3.4	4.0	4.1
Total	.....	.....	.....	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mathematics:											
Arithmetic:											
Fundamental operations	82.0	76.8	55.5	24.9	27.6	16.1	7.2	6.3	4.0	.....	28.1
Tables of weights and measures	13.2	15.0	25.3	23.7	5.2	3.4	2.4	6.6	1.2	.....	8.9
Percentage	.8	3.3	14.8	39.4	29.9	29.1	13.9	15.3	2.6	.2	14.4
Mensuration	.5	1.5	3.3	8.1	4.1	11.7	8.4	5.8	1.6	.....	4.4
Social arithmetic	3.5	3.4	1.1	3.9	12.5	19.3	21.3	19.2	4.4	7.1	9.6
Intuitive geometry:											
Direct measurement	.....	.....	.....	.....	4.4	1.7	1.9	.7	2.0	1.0	1.3
Mensuration	.....	.....	.....	.....	3.0	3.4	6.1	10.4	.8	.....	2.3
Indirect measurement	.....	.....	.....	.....	2.3	2.5	.8	2.2	1.4	.6	1.1
Geometric forms	.....	.....	.....	.....	7.5	7.1	9.5	11.4	1.7	2.0	3.9
Algebra:											
Formula	.....	.....	.....	.....	1.0	.3	5.3	5.3	5.7	8.0	2.8
Graphic representation	.....	.....	.....	.....	2.1	1.0	2.2	1.5	6.8	6.3	2.2
Positive and negative numbers	.....	.....	.....	.....	.....	.3	.5	1.7	10.0	6.5	2.2
Equations	.....	.....	.....	.....	.4	2.0	9.1	8.7	19.0	29.6	7.7
Algebraic technique	.....	.....	.....	.....	.....	2.1	11.4	4.6	37.2	35.8	10.5
Numerical trigonometry	.....	.....	.....	.....	.....	.....	.....	.3	1.6	2.9	.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Modern languages:*											
French:											
Pronunciation	.....	.....	.....	.....	.....	13.0	.....	12.8	.....	6.5	9.5
Grammar	.....	.....	.....	.....	.....	11.6	.....	15.4	.....	19.9	17.3
Vocabulary	.....	.....	.....	.....	.....	22.6	.....	11.1	.....	9.3	11.8
Oral work	.....	.....	.....	.....	.....	10.9	.....	15.9	.....	15.1	14.7
Dictation	.....	.....	.....	.....	.....	5.2	.....	5.9	.....	3.0	4.2
Written work	.....	.....	.....	.....	.....	7.9	.....	10.6	.....	17.4	13.8
Memory work	.....	.....	.....	.....	.....	4.7	.....	5.6	.....	3.6	4.4
Reading	.....	.....	.....	.....	.....	8.8	.....	14.1	.....	14.6	13.6
Translation	.....	.....	.....	.....	.....	15.3	.....	8.6	.....	10.6	10.7
Total	.....	.....	.....	.....	.....	100.0	.....	100.0	.....	100.0	100.0
Spanish:											
Pronunciation	.....	.....	.....	.....	.....	10.4	.....	7.6	.....	5.1	6.9
Grammar	.....	.....	.....	.....	.....	17.6	.....	14.7	.....	15.1	15.5
Vocabulary	.....	.....	.....	.....	.....	17.8	.....	13.4	.....	10.1	12.7
Oral work	.....	.....	.....	.....	.....	20.8	.....	18.1	.....	26.9	23.1
Dictation	.....	.....	.....	.....	.....	.5	.....	4.3	.....	3.7	3.1
Written work	.....	.....	.....	.....	.....	9.9	.....	12.8	.....	14.0	12.7
Memory work	.....	.....	.....	.....	.....	3.8	.....	2.8	.....	3.6	3.4
Reading	.....	.....	.....	.....	.....	13.4	.....	15.2	.....	12.7	13.8
Translation	.....	.....	.....	.....	.....	5.8	.....	11.1	.....	8.8	8.8
Total	.....	.....	.....	.....	.....	100.0	.....	100.0	.....	100.0	100.0
Science:											
Earth	13.1	.....	.....	21.5	33.6	5.3	8.6	14.8	4.7	12.1	10.9
Air	14.9	.....	.....	7.1	7.6	26.6	7.4	15.4	22.0	2.5	14.1
Fire	.....	.....	100.0	14.3	9.0	10.6	3.5	5.3	7.9	1.9	6.2
Water	11.2	.....	.....	7.1	26.4	4.0	9.6	13.0	20.2	.5	12.4

* The figures given for French and Spanish apply to the whole of the seventh, eighth, and ninth grades rather than to Grades 7-2, 8-2, and 9-2.

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Science—*Continued*											
Life on earth	57.1	.....	.....	28.6	8.7	15.7	16.3	11.7	8.8	30.3	16.3
Foods and nutrition	3.7	.....	.....	7.1	.5	6.0	5.6	10.8	15.9	8.0	9.5
Health and sanitation	.....	.....	.....	.....	12.3	11.2	14.4	6.0	8.7	14.4	10.5
Machines, work, and energy	.....	.....	.....	14.3	1.9	20.6	34.6	23.0	11.8	30.3	20.1
Total	100.0	.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Social studies:											
History:											
Early civilizations	60.8	2.6	39.5	.....	8.5	.5	.5	.....	.....	.....	4.7
Events leading to discovery of America	1.2	36.3	5.1	21.4	9.0	2.2	.5	.....	.....	.....	3.7
Discovery of America	5.3	10.7	5.0	11.3	9.9	3.9	.4	.....	.....	.....	3.0
Nations interested in discovery, exploration, and colonization	10.4	12.1	16.3	6.4	8.0	1.8	.9	.....	.....	.....	2.9
Study of three type colonies	19.7	.....	6.7	.....	7.9	12.6	1.6	.....	.....	.....	4.1
Intercolonial wars	1.2	.....	7.1	.....	8.2	1.7	.4	.....	.....	.....	1.6
American Revolution	.....	9.2	10.1	15.6	8.5	13.5	2.0	.....	.....	.....	4.6
Critical period	.....	2.1	2.0	3.2	7.4	3.9	5.0	.....	.....	.....	2.4
Making the Constitution	.....	.7	3.2	1.0	7.5	3.5	4.4	.....	.....	.....	2.2
Starting the new government	.....	2.3	1.8	1.0	5.5	5.4	3.8	.....	.....	.....	2.2
National struggle for commercial independence	1.2	.....	3.2	4.9	6.2	7.1	5.6	.....	.....	.....	2.9
Industrial progress before Civil War	.....	1.2	.....	2.0	2.1	6.6	9.0	5.0	.....	.....	2.8
Slavery issue	.....	5.1	.....	5.8	5.1	6.2	10.8	2.2	.....	.....	3.4
Civil War	.....	7.4	.....	7.8	2.5	9.0	8.8	4.0	.....	.....	3.6
Period of reconstruction	.....	.1	.....	3.9	.....	2.7	10.9	8.3	.....	.....	2.4
Industrial progress	.2	.9	.....	3.9	.....	4.8	8.8	19.2	.....	.....	3.2
Territorial growth	.....	5.5	.....	3.9	1.0	2.9	7.3	5.6	.....	.....	2.1
Transportation and communication	.....	3.4	.....	3.9	.7	1.7	9.8	3.0	.....	.....	2.1
Study of national issues	.....	.2	.....	2.0	1.7	4.5	3.0	27.1	.....	.....	3.1
International relations	.....	.2	.....	2.0	.3	5.5	6.5	25.6	.....	.....	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....	60.4

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Social studies—*Continued*											
Community civics:											
Relations with other people	26.2	31.3	24.7	16.4	8.5	6.9	12.8	2.2	5.7	.....	2.0
First community we know	13.1	23.3	14.0	8.2	7.0	.....	8.0	1.1	4.5	.....	1.2
Communities closely related to us	3.3	6.7	3.2	8.6	9.6	.....	3.2	4.1	5.4	.....	1.2
How communities grow	18.1	17.4	20.5	16.8	5.0	.....	.....	4.6	3.1	.....	1.3
Political communities	4.9	4.0	5.0	3.1	2.9	.8	19.2	24.3	3.6	.....	2.5
The citizen and his government	.....	2.7	5.0	3.1	7.8	.4	15.3	2.1	5.5	.....	1.1
Health	34.4	5.3	7.1	22.5	19.1	6.9	10.9	1.5	9.0	.....	2.1
Protection of life and property	.....	4.0	6.5	12.3	21.0	3.7	3.6	3.8	7.1	9.5	2.0
Education	.....	4.0	2.4	.....	.3	6.3	6.9	7.9	2.8	.....	1.4
Recreation	.....	1.3	1.3	1.0	3.7	6.7	2.4	2.0	4.7	3.6	.9
Community-planning	.....	.....	.6	1.0	2.1	6.5	2.4	3.6	8.6	5.9	1.3
Communication and transportation	.....	.....	4.3	1.0	.....	19.5	3.6	9.7	2.9	2.5	1.5
Wealth (getting a living)	.....	.....	1.7	1.0	2.5	8.4	11.7	5.9	2.3	5.5	1.2
Care of the unfortunate	.....	.....	.6	1.0	1.4	10.5	.....	3.2	4.6	12.5	1.2
Right living	.....	.....	.6	1.0	3.3	6.9	.....	1.5	3.5	7.2	.9
American ideals about government	.....	.....	.6	1.0	2.2	7.4	.....	4.2	7.6	12.4	1.5
How our laws are made and enforced	.....	.....	1.3	1.0	2.9	8.2	.....	8.3	15.8	16.6	2.5
How the government is supported	.....	.....	.6	1.0	.7	.9	.....	10.0	3.3	24.3	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	27.5
Vocational civics:											
General aims	.....	.....	33.0	.....	9.7	.....	10.6	.....	.....	11.1	.8
Specific aims	.....	.....	33.0	.....	49.9	.....	49.7	.....	72.5	54.1	4.4
Topics	.....	.....	34.0	.....	40.4	.....	39.7	.....	27.5	34.8	3.0
Total	.....	.....	100.0	.....	100.0	.....	100.0	.....	100.0	100.0	8.2

TABLE XXVIII—*Continued*

	Grade										
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	All
Social studies—*Continued*											
Economic civics:											
Universality of labor	.....	.....	.....	23.0	.....	.....	100.0	.....	9.6	9.1	.5
Conditions limiting vocational choice	.....	.....	.....	.....	.....	.....	.....	.....	9.6	8.8	.3
Work and its importance	.....	.....	.....	11.0	.....	.....	.....	12.5	12.4	16.1	.5
Agencies of production	.....	.....	.....	11.0	.....	.....	.....	50.0	12.4	32.5	1.0
Modern economic organizations	.....	.....	.....	11.0	.....	.....	.....	.....	16.4	.....	.2
Government as an economic agency	.....	.....	.....	.....	.....	.....	.....	.....	6.8	3.3	.2
Modern economic problems	.....	.....	.....	44.0	.....	.....	.....	37.5	32.8	30.2	1.2
Total	.....	.....	.....	100.0	.....	.....	100.0	100.0	100.0	100.0	3.9
Grand total for social studies	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100.0

TABLE XXIX

TOTAL TIME ALLOTMENTS OF EACH UNIT OF TEACHING DISTRIBUTED PROPORTIONALLY TO THE SEMESTERS*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
English (grammar):											
Sentence	5.9	5.4	18.3	7.9	25.2	11.2	3.8	2.0	7.8	12.5	100.0
Parts of speech	6.3	8.0	20.2	10.1	19.9	14.4	2.8	3.7	10.3	4.3	100.0
Nouns	1.7	.8	15.6	10.9	20.2	8.4	20.1	3.9	6.2	12.2	100.0
Pronouns	1.8	1.8	6.0	8.4	36.7	7.9	19.8	1.9	7.1	8.6	100.0
Adjectives	1.6	3.9	7.6	6.7	18.5	15.3	5.2	21.6	9.7	9.9	100.0
Adverbs	2.4	.....	8.0	3.5	21.0	18.1	4.3	19.8	10.8	12.1	100.0
Prepositional phrases	.....	.....	6.6	12.5	15.4	31.3	7.9	5.0	7.6	13.7	100.0
Verbs	1.0	.....	3.4	3.1	10.5	18.9	12.2	14.0	10.1	26.8	100.0
Clauses	.....	.....	.....	4.3	2.1	31.7	9.0	26.3	13.7	12.9	100.0
Structures for varying expression	.....	.....	.....	.....	5.9	6.8	1.9	34.6	24.1	26.7	100.0
Geography:											
Local district	19.6	17.1	13.6	2.7	34.4	7.8	4.8	.....	.....	.....	100.0
Life in the state	16.3	10.4	8.2	7.4	36.8	9.5	11.4	.....	.....	.....	100.0
United States	32.4	11.0	14.7	19.8	9.5	8.8	3.8	.....	.....	.....	100.0
World as a whole	20.8	25.6	9.1	18.6	14.6	7.4	3.9	.....	.....	.....	100.0
Africa	.....	.....	20.5	44.1	17.1	18.3	.....	.....	.....	.....	100.0
Asia	.....	1.1	18.7	42.6	13.4	24.2	.....	.....	.....	.....	100.0
Australia, etc.	.....	12.7	.....	32.8	17.3	37.2	.....	.....	.....	.....	100.0
Europe	.....	.....	46.7	22.2	23.1	8.0	.....	.....	.....	.....	100.0
North America other than United States	26.5	59.8	7.6	6.1	.....	.....	.....	.....	.....	.....	100.0
South America	.....	53.6	31.5	.....	.....	14.9	.....	.....	.....	.....	100.0
General geography	18.0	7.6	14.3	7.6	26.7	14.3	11.5	.....	.....	.....	100.0

* The percentages were obtained as follows: (1) The total of all of the time allotments to a given unit of teaching was secured for each semester; the total for the first unit of teaching in grammar in Grade 5-1 is 1,056 minutes; in Grade 5-2, 961 minutes, etc. (2) The sum total of the ten semester totals was secured for each unit of teaching; the sum total for the first unit of teaching in grammar is 17,794 minutes; for the second, 18,765 minutes, etc. (3) The ratio of the total time allotment for a unit of teaching for a given semester to the sum total of the ten semester totals is the average proportional distribution of the total time allotment for the unit of teaching to the semester; the ratio of 1,056 minutes, the total time allotment for the first unit of teaching in grammar in Grade 5-1, to 17,794 minutes, the sum total of the ten semesters, is 5.9 per cent, which is the percentage of the total time allotment for the first unit of teaching in grammar used in Grade 5-1.

TABLE XXIX—*Continued*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
Health:											
Hygiene:											
Health habit formation	17.2	12.3	12.7	9.2	12.6	7.9	7.2	5.6	8.6	6.7	100.0
Health information	12.5	13.4	10.3	12.2	9.9	12.8	10.1	7.2	7.1	4.5	100.0
Health ideals	17.7	7.3	6.7	11.4	15.4	18.0	8.7	6.7	6.3	1.8	100.0
Attitude of individual responsibility	10.8	7.5	9.6	13.2	17.2	15.4	9.1	12.8	3.2	1.2	100.0
Physical education:											
Formal work	7.2	7.2	7.2	8.1	11.7	12.8	10.1	11.3	11.8	12.6	100.0
Swimming	10.0	10.0	10.0	10.0	4.0	16.5	.....	12.5	7.2	19.8	100.0
Rhythmic work	11.1	11.1	11.1	13.6	7.7	11.0	6.0	9.3	7.9	11.2	100.0
Play and games	9.4	9.4	9.2	12.7	10.4	11.6	7.9	9.1	9.6	10.7	100.0
Highly organized games and athletics	6.1	6.1	6.1	8.7	11.7	14.0	11.0	11.0	13.8	11.5	100.0
Organized recess	11.1	11.1	11.1	11.0	9.3	9.3	9.3	9.3	9.3	9.2	100.0
Home economics:											
Home and family:											
Home	2.5	3.1	2.7	3.1	10.0	12.9	18.9	8.4	18.1	20.3	100.0
House	1.0	1.0	4.4	3.9	3.2	2.8	20.5	17.3	18.5	27.4	100.0
Family	1.8	1.8	2.0	3.3	4.1	6.9	5.2	10.6	34.9	29.4	100.0
Foods:											
Meal planning, etc.	.2	2.3	3.3	4.6	12.9	15.5	9.4	11.9	20.3	19.6	100.0
Food care, etc.	.....	.....	2.4	3.2	14.4	14.6	19.8	19.2	13.9	12.5	100.0
Food industries	.....	.....	2.8	2.6	15.0	10.5	16.2	6.1	33.7	13.1	100.0
Clothing:											
Ready-made articles, etc.	4.8	5.1	6.2	7.2	11.2	17.6	3.4	19.9	9.8	14.8	100.0
Care, repair, etc.	3.2	1.0	.6	1.9	24.8	9.9	30.0	6.3	7.2	15.1	100.0
Construction, etc.	5.3	4.2	2.2	3.3	9.9	7.3	11.3	8.3	21.3	26.9	100.0
Clothing industries	1.9	1.9	1.0	2.5	10.0	7.5	12.3	6.8	19.9	36.2	100.0

TABLE XXIX—*Continued*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
Latin:											
Vocabulary	.....	.....	.....	.....	3.0	5.9	14.1	14.8	31.8	30.4	100.0
Grammar	.....	.....	.....	.....	2.3	9.4	14.7	15.7	31.2	26.7	100.0
Forms	.....	.....	.....	.....	2.0	9.5	14.3	18.2	32.8	23.2	100.0
Latin to English (prepared)	.....	.....	.....	.....	2.9	7.2	9.3	12.5	33.5	34.6	100.0
Latin to English (sight)	.....	.....	.....	.....	.8	6.1	10.2	13.4	28.5	41.0	100.0
English to Latin (prepared)	.....	.....	.....	.....	3.2	8.1	11.7	13.3	31.0	32.7	100.0
English to Latin (sight)	.....	.....	.....	.....	.6	16.9	15.2	14.6	26.5	26.2	100.0
Relation of Latin to English	.....	.....	.....	.....	2.1	4.1	23.8	23.8	23.1	23.1	100.0
Relation to other foreign languages	.....	.....	.....	.....	.....	4.0	24.0	24.0	22.0	26.0	100.0
Roman history	.....	.....	.....	.....	1.1	4.2	17.7	23.1	24.6	29.3	100.0
Mathematics:											
Arithmetic:											
Fundamental operations	26.5	25.0	18.2	7.7	10.3	6.2	2.3	2.0	1.8	.....	100.0
Tables of weights and measures	13.5	15.4	26.3	23.3	6.2	4.1	2.4	7.1	1.7	.....	100.0
Percentage	.5	2.1	9.5	23.9	21.1	21.8	8.6	10.1	2.3	.1	100.0
Mensuration	1.0	3.0	6.8	16.0	10.0	29.0	17.0	12.6	4.6	.....	100.0
Social arithmetic	3.3	3.3	1.1	3.6	13.7	21.8	19.8	19.0	5.9	8.5	100.0
Intuitive geometry:											
Direct measurement	.....	.....	.....	.....	36.2	14.3	13.3	5.5	20.0	10.7	100.0
Mensuration	.....	.....	.....	.....	14.2	15.9	23.1	42.4	4.4	.....	100.0
Indirect measurement	.....	.....	.....	.....	24.4	25.2	6.8	19.8	17.0	6.8	100.0
Geometric forms	.....	.....	.....	.....	20.3	19.5	21.5	27.4	5.6	5.7	100.0
Algebra:											
Formula	.....	.....	.....	.....	4.0	1.3	17.0	18.1	26.4	33.2	100.0
Graphic representation	.....	.....	.....	.....	9.9	4.7	8.8	6.2	38.4	32.0	100.0
Positive and negative numbers	.....	.....	.....	.....	.....	1.6	2.0	7.2	56.3	32.9	100.0
Equations	.....	.....	.....	.....	.7	2.1	10.4	10.7	31.4	44.7	100.0
Algebraic technique	.....	.....	.....	.....	.....	2.1	9.6	4.1	45.1	39.1	100.0
Numerical trigonometry	.....	.....	.....	.....	.....	.....	.....	4.5	36.9	58.6	100.0

TABLE XXIX—*Continued*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
Modern languages:*											
French:											
Pronunciation	.....	.....	.....	.....	.....	20.0	.....	43.4	.....	36.6	100.0
Grammar	.....	.....	.....	.....	.....	9.7	.....	28.7	.....	61.6	100.0
Vocabulary	.....	.....	.....	.....	.....	27.6	.....	30.1	.....	42.3	100.0
Oral work	.....	.....	.....	.....	.....	10.6	.....	34.5	.....	54.9	100.0
Dictation	.....	.....	.....	.....	.....	17.6	.....	44.5	.....	37.9	100.0
Written work	.....	.....	.....	.....	.....	8.3	.....	24.6	.....	67.1	100.0
Memory work	.....	.....	.....	.....	.....	15.4	.....	41.0	.....	43.6	100.0
Reading	.....	.....	.....	.....	.....	9.3	.....	33.3	.....	57.4	100.0
Translation	.....	.....	.....	.....	.....	20.7	.....	26.1	.....	53.2	100.0
Spanish:											
Pronunciation	.....	.....	.....	.....	.....	33.9	.....	29.5	.....	36.6	100.0
Grammar	.....	.....	.....	.....	.....	25.5	.....	25.5	.....	49.0	100.0
Vocabulary	.....	.....	.....	.....	.....	31.5	.....	28.4	.....	40.1	100.0
Oral work	.....	.....	.....	.....	.....	20.2	.....	21.2	.....	58.6	100.0
Dictation	.....	.....	.....	.....	.....	3.9	.....	36.7	.....	59.4	100.0
Written work	.....	.....	.....	.....	.....	17.5	.....	27.3	.....	55.2	100.0
Memory work	.....	.....	.....	.....	.....	24.8	.....	22.3	.....	52.9	100.0
Reading	.....	.....	.....	.....	.....	22.3	.....	30.4	.....	47.3	100.0
Translation	.....	.....	.....	.....	.....	15.1	.....	34.5	.....	50.4	100.0
Science:											
Earth	2.5	.....	.....	3.2	25.8	4.9	12.3	17.6	13.1	20.6	100.0
Air	2.2	.....	.....	.8	4.6	19.1	8.2	14.2	47.5	3.4	100.0
Fire	.....	.....	1.9	3.8	12.2	17.4	8.8	11.2	39.0	5.7	100.0
Water	1.9	.....	.....	.9	17.9	3.3	12.1	13.6	49.6	.7	100.0
Life on earth	7.3	.....	.....	2.9	4.5	9.7	15.7	9.3	16.2	34.4	100.0
Foods and nutrition	.8	.....	.....	1.2	.4	6.4	9.3	14.9	51.3	15.7	100.0
Health and sanitation	.....	.....	.....	.....	9.8	10.8	21.5	7.4	25.1	25.4	100.0
Machines, work, and energy	.....	.....	.....	.1	.1	10.3	27.0	15.8	18.8	27.9	100.0

* The figures given for French and Spanish apply to the whole of the seventh, eighth, and ninth grades rather than to Grades 7-2, 8-2, and 9-2.

TABLE XXIX—*Continued*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
Social studies:											
History:											
Early civilizations	46.9	2.0	26.1	.....	21.9	1.8	1.3	.....	.....	.....	100.0
Events leading to discovery of America	1.1	35.6	4.2	18.6	29.5	9.4	1.6	.....	.....	.....	100.0
Discovery of America	6.4	13.1	5.2	12.2	40.5	20.8	1.8	.....	.....	.....	100.0
Nations interested in discovery, exploration, and colonization	13.0	15.2	17.4	7.1	33.8	9.8	3.7	.....	.....	.....	100.0
Study of three type colonies	17.6	.....	4.3	.....	23.7	49.6	4.8	.....	.....	.....	100.0
Intercolonial wars	2.7	.....	13.9	.....	62.8	17.3	3.3	.....	.....	.....	100.0
American Revolution	.....	7.3	6.8	10.9	22.6	47.0	5.4	.....	.....	.....	100.0
Critical period	.....	3.2	2.7	4.4	37.8	26.3	25.6	.....	.....	.....	100.0
Making the Constitution	.....	1.2	4.6	1.5	42.0	26.0	24.7	.....	.....	.....	100.0
Starting the new government	.....	3.8	4.0	1.4	30.5	39.4	20.9	.....	.....	.....	100.0
National struggle for commercial independence	1.5	.....	3.5	5.5	26.3	39.4	23.8	.....	.....	.....	100.0
Industrial progress before Civil War	.....	1.5	.....	2.2	8.9	37.4	38.8	11.2	.....	.....	100.0
Slavery issue	.....	5.4	.....	5.5	18.0	28.7	38.3	4.1	.....	.....	100.0
Civil War	.....	7.5	.....	7.0	8.4	40.3	29.8	7.0	.....	.....	100.0
Period of reconstruction	.....	2.0	.....	5.2	.....	18.1	54.7	20.0	.....	.....	100.0
Industrial progress	.4	1.0	.....	3.9	.....	23.6	33.3	37.8	.....	.....	100.0
Territorial growth	.....	9.4	.....	5.9	5.9	19.8	42.1	16.9	.....	.....	100.0
Transportation and communication	.....	6.3	.....	6.3	4.2	13.9	59.7	9.6	.....	.....	100.0
Study of national issues	.....	.3	.....	2.0	6.8	23.3	11.7	55.9	.....	.....	100.0
International relations	.....	.3	.....	1.8	1.2	25.9	23.4	47.4	.....	.....	100.0
Community civics:											
Relations with other people	8.4	12.3	12.0	8.4	12.3	7.5	10.0	7.5	21.6	.....	100.0
First community we know	6.8	14.7	11.0	6.8	16.5	.....	10.2	6.2	27.8	.....	100.0
Communities closely related to us	1.7	4.4	2.6	7.3	23.1	.....	4.2	23.0	33.7	.....	100.0
How communities grow	8.8	10.4	15.2	13.1	11.0	.....	.....	23.6	17.9	.....	100.0
Political communities	1.3	1.3	1.9	1.3	3.4	.7	12.2	66.8	11.1	.....	100.0
The citizen and his government	.....	1.8	4.2	2.8	19.9	.7	21.2	12.3	37.1	.....	100.0

TABLE XXIX—*Continued*

	Grade										Total
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2	
Social studies: Community civics—*Continued*											
Health	10.3	2.0	3.2	6.9	25.9	7.0	8.0	4.9	31.8	.....	100.0
Protection of life and property	.....	1.5	3.1	6.2	29.7	4.0	2.8	12.6	26.3	13.8	100.0
Education	.....	2.2	1.7	.....	25.1	.6	9.8	7.7	52.9	.....	100.0
Recreation	.....	1.1	1.3	1.1	11.5	15.8	4.1	14.7	39.0	11.4	100.0
Community-planning	.....	.....	.5	.8	4.7	10.7	2.8	18.3	49.0	13.2	100.0
Communication and transportation	.....	.....	2.8	.7	.....	28.7	3.8	44.3	14.6	5.1	100.0
Wealth (getting a living)	.....	.....	1.4	.7	6.1	15.3	15.3	33.1	14.6	13.5	100.0
Care of the unfortunate	.....	.....	.4	1.0	3.4	18.8	.....	17.7	28.5	30.2	100.0
Right living	.....	.....	.7	1.2	11.4	17.8	.....	12.4	31.1	25.4	100.0
American ideals about government	.....	.....	.2	1.0	4.3	11.0	.....	19.1	39.3	25.1	100.0
How our laws are made and enforced	.....	.....	.5	.4	3.3	7.1	.....	22.2	47.2	19.3	100.0
How the government is supported	.....	.....	.4	.6	1.2	1.1	.....	39.7	14.9	42.1	100.0
Vocational civics:											
General aims	.....	.....	3.9	.....	23.6	.....	33.6	.....	.....	38.9	100.0
Specific aims	.....	.....	.8	.....	21.7	.....	28.3	.....	15.1	34.1	100.0
Topics	.....	.....	1.0	.....	25.8	.....	32.9	.....	8.3	32.0	100.0
Economic civics:											
Universality of labor	.....	.....	.....	5.0	.....	.....	24.0	.....	29.4	41.6	100.0
Conditions limiting vocational choice	.....	.....	.....	.....	.....	.....	.....	.....	42.4	57.6	100.0
Work and its importance	.....	.....	.....	2.0	.....	.....	.....	9.6	30.2	58.2	100.0
Agencies of production	.....	.....	.....	1.1	.....	.....	.....	20.4	16.0	62.5	100.0
Modern economic organizations	.....	.....	.....	4.7	.....	.....	.....	.....	95.3	.....	100.0
Government as an economic agency	.....	.....	.....	.....	.....	.....	.....	.....	58.3	41.7	100.0
Modern economic problems	.....	.....	.....	3.5	.....	.....	.....	13.0	35.1	48.4	100.0

TABLE XXX

VARIATIONS IN PRACTICE*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
English (grammar):										
Sentence	5	5	8	5	9	5	5	2	6	6
	315	210	725	669	1,350	880	310	320	615	1,205
	46	43	87	27	43	30	17	19	58	75
Parts of speech	4	4	11	6	8	3	4	3	7	6
	760	736	765	765	1,030	1,700	330	580	205	225
	18	11	98	81	56	92	18	98	65	19
Nouns	2	1	5	4	7	3	5	3	5	5
	15	.....	300	170	485	33	1,170	175	75	300
	23	.....	74	41	31	8	47	40	10	19
Pronouns	1	1	2	4	7	4	5	2	5	6
	.....	.....	120	280	1,280	240	1,100	80	50	145
	.....	.....	3	87	55	15	44	4	12	13
Adjectives	1	1	4	4	5	4	3	3	4	5
	.....	.....	95	60	375	340	120	690	160	75
	.....	.....	11	22	9	36	16	29	6	4
Adverbs	1	.....	4	2	5	5	3	3	5	5
	.....	.....	85	65	375	350	58	457	80	81
	.....	.....	10	1	11	38	9	18	1	4
Prepositional phrases	.....	.....	4	7	5	6	4	2	5	7
	.....	.....	165	190	470	995	240	205	140	207
	.....	.....	8	20	23	49	31	8	13	16

* The first figure in each case is the number of centers giving instruction in the unit of teaching; the second figure is the difference in minutes between the highest and the lowest semester time allotments; the third figure is the difference between the highest and the lowest proportional time allotments of the semester to the unit of teaching.

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
English (grammar)—*Continued*	1	.....	2	2	4	5	5	5	8	9
Verbs	.....	.....	270	310	800	1,580	608	810	265	1,710
	.....	.....	11	8	26	63	81	72	18	67
	.....	.....	.....	1	2	6	4	7	8	7
Clauses	.....	.....	.....	.....	0	1,300	355	975	190	286
	.....	.....	.....	.....	1	79	31	97	30	24
	.....	.....	.....	.....	3	2	2	7	8	10
Structures for varying expression	.....	.....	.....	.....	130	170	58	577	193	320
	.....	.....	.....	.....	57	8	8	50	69	41
Geography:										
	4	3	3	2	3	2	2	.....	.....	.....
Local district	690	690	549	22	875	102	110	.....	.....	.....
	30	30	19	0	21	0	5	.....	.....	.....
	5	3	3	2	5	2	2	.....	.....	.....
Life in the state	690	690	549	514	550	90	470	.....	.....	.....
	30	30	19	15	43	31	17	.....	.....	.....
	8	6	6	6	3	3	2	.....	.....	.....
United States	4,348	1,048	2,359	2,940	1,750	806	280	.....	.....	.....
	96	46	98	97	25	47	0	.....	.....	.....
	6	6	4	7	4	4	2	.....	.....	.....
World as a whole	2,412	2,600	2,040	3,300	3,840	1,152	330	.....	.....	.....
	84	84	24	61	73	68	0	.....	.....	.....
	.....	.....	3	3	2	1	.....	.....	.....	.....
Africa	.....	.....	578	1,175	270	.....	.....	.....	.....	.....
	.....	.....	23	25	20	.....	.....	.....	.....	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Geography—*Continued*										
Asia	.....	1	2	4	2	2	.....	.....	.....	.....
	.....	.....	252	1,875	30	1,750	.....	.....	.....	.....
	.....	.....	33	38	13	39	.....	.....	.....	.....
Australia, etc.	.....	1	.....	4	2	2	.....	.....	.....	.....
	.....	.....	.....	825	510	370	.....	.....	.....	.....
	.....	.....	.....	17	27	5	.....	.....	.....	.....
Europe	.....	.....	5	5	2	1	.....	.....	.....	.....
	.....	.....	4,375	1,750	3,960	.....	.....	.....	.....	.....
	.....	.....	55	84	60	.....	.....	.....	.....	.....
North America other than United States	3	4	1	1	.....	.....	.....	.....	.....	.....
	1,750	2,160	.....	.....	.....	.....	.....	.....	.....	.....
	74	42	.....	.....	.....	.....	.....	.....	.....	.....
South America	.....	4	2	.....	.....	1	.....	.....	.....	.....
	.....	1,873	925	.....	.....	.....	.....	.....	.....	.....
	.....	43	43	.....	.....	.....	.....	.....	.....	.....
General geography	3	1	3	1	3	1	2	.....	.....	.....
	800	.....	1,250	.....	4,280	.....	1,390	.....	.....	.....
	50	.....	75	.....	80	.....	22	.....	.....	.....
Health:										
Hygiene:										
Health habit formation	11	7	8	6	10	8	7	7	7	6
	1,330	1,330	1,330	1,330	1,537	1,537	1,537	1,537	1,537	1,537
	87	87	94	94	91	37	94	40	71	88
Health information	6	7	5	5	9	10	8	8	8	5
	1,055	1,055	1,305	1,305	1,368	738	1,368	738	1,368	278
	42	73	40	73	57	99	99	77	99	24

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Health: Hygiene—*Continued*										
Health ideals	5	4	3	6	5	5	5	4	4	2
	355	85	65	225	430	444	105	105	90	15
	22	7	7	47	11	34	6	6	12	6
Attitude of individual responsibility	6	5	5	6	6	5	5	5	2	2
	435	71	71	211	680	680	210	320	80	0
	24	7	47	47	18	18	11	41	4	9
Physical education:										
Formal work	9	9	9	10	13	14	10	11	12	12
	1,028	1,028	1,028	1,028	1,680	1,680	1,545	1,545	1,575	1,545
	22	22	22	22	59	59	55	55	95	58
Swimming	1	1	1	1	1	2	.....	1	1	2
	.....	.....	.....	.....	.....	685	.....	.....	.....	420
	.....	.....	.....	.....	.....	11	.....	.....	.....	12
Rhythmic work	10	10	10	11	9	10	6	7	9	9
	964	964	964	964	870	1,164	870	1,164	870	1,164
	49	49	49	49	25	25	25	25	25	25
Play and games	9	9	9	10	11	12	8	9	10	11
	715	715	715	1,315	1,155	1,155	1,155	1,155	1,155	1,155
	21	21	21	30	29	29	16	18	32	32
Highly organized games and athletics	6	6	6	7	10	11	8	9	9	10
	1,053	1,053	1,053	1,243	770	850	770	850	835	835
	34	34	34	34	18	17	18	17	18	17
Organized recess	3	3	3	3	2	2	2	2	2	2
	413	413	413	413	1,505	1,505	1,505	1,505	1,505	1,505
	21	21	21	21	13	13	13	13	13	13

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Home economics:										
Home and family:										
Home	2	2	3	3	5	5	4	4	6	7
	0	120	300	260	800	800	2,075	360	1,770	1,770
	60	60	88	88	75	64	67	25	47	41
House	1	1	2	1	3	2	3	2	5	7
	.....	.....	440	.....	190	150	1,400	1,400	900	1,010
	.....	.....	30	.....	25	8	67	67	25	32
Family	1	1	2	2	3	4	3	3	7	7
	.....	.....	140	40	440	400	296	160	1,040	1,696
	.....	.....	9	75	16	89	80	36	66	91
Foods:										
Meal planning, etc.	1	2	5	5	8	9	7	8	9	8
	.....	1,110	1,313	1,260	2,400	3,020	1,600	3,020	4,730	4,730
	.....	0	30	40	73	40	79	83	84	84
Food care, etc.	.....	.....	2	3	6	6	8	7	7	6
	.....	.....	47	280	700	700	836	836	320	580
	.....	.....	5	29	8	11	95	72	20	18
Food industries	.....	.....	2	2	6	5	4	2	6	5
	.....	.....	80	60	400	445	300	200	1,800	200
	.....	.....	11	1	18	18	11	8	46	15
Clothing:										
Ready-made articles, etc.	3	2	2	3	3	3	3	4	7	8
	525	624	800	800	1,100	2,140	348	2,375	410	700
	96	96	92	95	95	94	11	96	15	18
Care, repair, etc.	3	1	1	2	4	4	6	3	5	9
	195	.....	.....	230	4,016	690	4,216	1,095	450	700
	25	.....	.....	2	78	33	89	35	13	16

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Home economics: Clothing—*Continued*										
Construction, etc.	4	3	2	2	6	5	7	5	9	12
	1,200	840	600	1,740	2,370	2,010	2,948	1,908	2,900	2,900
	33	20	25	5	67	67	99	62	62	62
Clothing industries	1	1	1	2	4	3	5	3	6	8
	.....	.....	.....	65	100	100	300	300	560	560
	.....	.....	.....	4	7	7	8	8	16	19
Latin:*										
Vocabulary	.....	.....	.....	.....	1	3	6	7	13	13
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	10	27	12	23	25
Grammar	.....	.....	.....	.....	1	4	7	8	12	12
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	12	16	15	21	21
Forms	.....	.....	.....	.....	1	4	6	8	13	13
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	5	21	24	23	23
Latin to English (prepared)	.....	.....	.....	.....	1	4	5	6	13	13
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	19	10	10	22	24
Latin to English (sight)	.....	.....	.....	.....	1	4	7	8	12	13
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	17	18	18	25	36

* In the special Latin questionnaire the time allotment was based on the daily schedule instead of the weekly schedule as in the case of the other subjects. The different basis does not provide figures that may be compared readily. The second row of figures is omitted, therefore, in the case of Latin. The degree of variation, however, is shown by the difference in proportional time allotments.

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Latin—*Continued*										
English to Latin (prepared)	.....	.....	.....	.....	1	3	4	5	12	12
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	10	20	20	21	16
English to Latin (sight)	.....	.....	.....	.....	1	4	5	5	10	10
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	27	27	27	16	16
Relation of Latin to English	.....	.....	.....	.....	1	4	7	8	13	13
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	6	44	44	8	8
Relation to other foreign languages	.....	.....	.....	.....	.....	1	4	4	6	5
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	.....	4	4	2	3
Roman history	.....	.....	.....	.....	1	3	6	7	10	10
	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	.....	.....	.....	.....	.....	3	17	17	7	8
Mathematics:										
Arithmetic:										
Fundamental operations	14	14	14	10	12	12	4	5	2	.....
	3,950	3,475	3,800	1,275	2,290	1,600	280	640	120	.....
	60	62	80	62	55	31	69	41	41	.....
Tables of weights and measures	9	10	11	11	5	8	4	6	1	.....
	1,595	1,350	2,900	2,900	2,090	415	775	1,850	.....	.....
	30	28	58	58	49	12	35	95	.....	.....
Percentage	2	3	8	13	11	11	4	6	2	1
	200	1,157	1,600	2,300	1,400	2,350	2,550	2,650	870	.....
	8	30	43	68	42	86	64	25	11	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Mathematics: Arithmetic—*Continued*										
Mensuration	2	2	3	7	5	10	3	3	1	.....
	20	283	875	525	1,020	1,920	2,150	680	.....	.....
	2	6	25	20	73	50	48	22	.....	.....
Social arithmetic	3	4	3	5	7	12	8	8	1	1
	925	750	200	550	1,450	2,200	2,025	1,975	.....	.....
	45	37	5	18	44	56	94	53	.....	.....
Intuitive geometry:										
Direct measurement	.....	.....	.....	.....	5	2	2	1	3	2
	.....	.....	.....	.....	920	455	200	.....	720	295
	.....	.....	.....	.....	36	6	4	.....	49	50
Mensuration	.....	.....	.....	.....	2	3	4	5	1	.....
	.....	.....	.....	.....	1,520	740	900	1,115	.....	.....
	.....	.....	.....	.....	37	49	49	83	.....	.....
Indirect measurement	.....	.....	.....	.....	2	2	3	3	2	2
	.....	.....	.....	.....	690	560	240	745	130	165
	.....	.....	.....	.....	63	60	13	33	2	13
Geometric forms	.....	.....	.....	.....	4	4	4	5	2	3
	.....	.....	.....	.....	1,270	1,320	1,410	2,800	252	325
	.....	.....	.....	.....	45	40	46	90	24	30
Algebra:										
Formula	.....	.....	.....	.....	1	1	4	5	9	8
	.....	.....	.....	.....	.....	.....	800	915	830	1,425
	.....	.....	.....	.....	.....	.....	44	92	20	34
Graphic representation	.....	.....	.....	.....	1	2	3	2	7	7
	.....	.....	.....	.....	.....	25	300	350	1,240	1,020
	.....	.....	.....	.....	.....	66	90	11	36	25

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Mathematics: Algebra—*Continued*										
Positive and negative numbers	.....	.....	.....	.....	.....	1	1	2	12	3
	.....	.....	.....	.....	.....	.....	.....	325	855	840
	.....	.....	.....	.....	.....	.....	.....	39	14	29
Equations	.....	.....	.....	.....	1	2	5	4	11	12
	.....	.....	.....	.....	.....	40	900	575	1,788	2,150
	.....	.....	.....	.....	.....	40	84	26	56	35
Algebraic technique	.....	.....	.....	.....	.....	1	3	4	12	12
	.....	.....	.....	.....	.....	.....	1,900	525	2,190	1,990
	.....	.....	.....	.....	.....	.....	49	39	53	50
Numerical trigonometry	.....	.....	.....	.....	.....	.....	.....	1	2	3
	.....	.....	.....	.....	.....	.....	.....	.....	320	320
	.....	.....	.....	.....	.....	.....	.....	.....	9	9
Modern languages:*										
French:										
Pronunciation	.....	.....	.....	.....	.....	4	.....	8	.....	12
	.....	.....	.....	.....	.....	1,215	.....	2,075	.....	1,331
	.....	.....	.....	.....	.....	9	.....	16	.....	21
Grammar	.....	.....	.....	.....	.....	3	.....	8	.....	12
	.....	.....	.....	.....	.....	635	.....	2,385	.....	2,915
	.....	.....	.....	.....	.....	15	.....	24	.....	23
Vocabulary	.....	.....	.....	.....	.....	4	.....	8	.....	12
	.....	.....	.....	.....	.....	750	.....	1,550	.....	1,406
	.....	.....	.....	.....	.....	5	.....	11	.....	13

*The figures given for French and Spanish apply to the whole of the seventh, eighth, and ninth grades rather than to Grades 7-2, 8-2, and 9-2.

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Modern languages: French—*Continued*										
Oral work	.....	.....	.....	.....	.....	3	.....	8	.....	12
	.....	.....	.....	.....	.....	700	.....	2,155	.....	815
	.....	.....	.....	.....	.....	15	.....	15	.....	40
Dictation	.....	.....	.....	.....	.....	2	.....	7	.....	9
	.....	.....	.....	.....	.....	1,050	.....	1,150	.....	750
	.....	.....	.....	.....	.....	11	.....	12	.....	8
Written work	.....	.....	.....	.....	.....	3	.....	7	.....	12
	.....	.....	.....	.....	.....	230	.....	1,120	.....	2,320
	.....	.....	.....	.....	.....	10	.....	9	.....	14
Memory work	.....	.....	.....	.....	.....	4	.....	7	.....	8
	.....	.....	.....	.....	.....	705	.....	1,465	.....	1,317
	.....	.....	.....	.....	.....	8	.....	14	.....	11
Reading	.....	.....	.....	.....	.....	3	.....	7	.....	11
	.....	.....	.....	.....	.....	1,310	.....	2,020	.....	2,100
	.....	.....	.....	.....	.....	11	.....	21	.....	28
Translation	.....	.....	.....	.....	.....	3	.....	5	.....	9
	.....	.....	.....	.....	.....	2,600	.....	2,030	.....	2,200
	.....	.....	.....	.....	.....	25	.....	19	.....	17
Spanish:										
Pronunciation	.....	.....	.....	.....	.....	5	.....	4	.....	7
	.....	.....	.....	.....	.....	1,300	.....	180	.....	850
	.....	.....	.....	.....	.....	9	.....	2	.....	8
Grammar	.....	.....	.....	.....	.....	4	.....	4	.....	6
	.....	.....	.....	.....	.....	1,800	.....	1,892	.....	1,500
	.....	.....	.....	.....	.....	37	.....	23	.....	16

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Modern languages: Spanish—*Continued*										
Vocabulary	.....	.....	.....	.....	.....	5	.....	4	.....	8
	.....	.....	.....	.....	.....	2,010	.....	540	.....	1,880
	.....	.....	.....	.....	.....	27	.....	6	.....	16
Oral work	.....	.....	.....	.....	.....	4	.....	5	.....	8
	.....	.....	.....	.....	.....	1,700	.....	1,680	.....	4,020
	.....	.....	.....	.....	.....	12	.....	26	.....	50
Dictation	.....	.....	.....	.....	.....	1	.....	4	.....	6
	.....	.....	.....	.....	.....	.....	.....	400	.....	520
	.....	.....	.....	.....	.....	.....	.....	34	.....	9
Written work	.....	.....	.....	.....	.....	3	.....	5	.....	8
	.....	.....	.....	.....	.....	1,000	.....	946	.....	1,840
	.....	.....	.....	.....	.....	5	.....	22	.....	9
Memory work	.....	.....	.....	.....	.....	2	.....	4	.....	6
	.....	.....	.....	.....	.....	590	.....	98	.....	340
	.....	.....	.....	.....	.....	3	.....	2	.....	10
Reading	.....	.....	.....	.....	.....	4	.....	4	.....	8
	.....	.....	.....	.....	.....	2,210	.....	1,732	.....	2,000
	.....	.....	.....	.....	.....	21	.....	18	.....	28
Translation	.....	.....	.....	.....	.....	2	.....	3	.....	5
	.....	.....	.....	.....	.....	300	.....	1,742	.....	1,840
	.....	.....	.....	.....	.....	4	.....	16	.....	14
Science:										
Earth	2	.....	.....	1	4	2	4	4	5	5
	251	.....	.....	.....	1,840	590	480	960	595	675
	22	.....	.....	.....	90	13	27	25	18	16

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Science—*Continued*										
Air	2	.....	.....	1	2	4	3	4	8	3
	202	.....	.....	.....	86	1,980	212	780	2,572	410
	18	.....	.....	.....	8	45	13	47	37	9
Fire	.....	.....	1	2	2	2	3	3	7	1
	.....	.....	.....	1,200	70	420	42	160	660	.....
	.....	.....	.....	43	2	26	10	10	14	.....
Water	1	.....	.....	1	2	1	4	4	7	2
	.....	.....	.....	.....	1,950	.....	480	600	1,870	555
	.....	.....	.....	.....	38	.....	10	36	12	14
Life on earth	2	.....	.....	1	1	2	4	5	5	7
	952	.....	.....	.....	.....	470	1,380	740	1,695	1,640
	58	.....	.....	.....	.....	53	21	17	38	42
Foods and nutrition	1	.....	.....	1	1	3	3	3	6	5
	.....	.....	.....	.....	.....	320	340	1,020	2,160	475
	.....	.....	.....	.....	.....	13	5	21	16	10
Health and sanitation	.....	.....	.....	.....	3	5	4	5	6	6
	.....	.....	.....	.....	540	510	1,380	304	760	1,140
	.....	.....	.....	.....	10	20	64	7	72	97
Machine, work, and energy	.....	.....	.....	1	1	3	5	3	6	6
	.....	.....	.....	.....	.....	1,236	2,560	2,152	1,230	1,790
	.....	.....	.....	.....	.....	61	60	40	23	53
Social studies:										
History:										
Early civilizations	2	1	2	.....	3	1	1	.....	.....	.....
	150	.....	1,070	.....	1,105	.....	.....	.....	.....	.....
	0	.....	16	.....	42	.....	.....	.....	.....	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies: History—*Continued*										
Events leading to discovery of America	1	3	1	2	7	3	1	.....	.....	.....
	.....	1,995	.....	1,105	524	220	.....	.....	.....	.....
	.....	49	.....	15	24	5	.....	.....	.....	.....
Discovery of America	2	3	2	2	7	3	1	.....	.....	.....
	340	570	130	630	435	1,100	.....	.....	.....	.....
	15	14	13	12	15	27	.....	.....	.....	.....
Nations interested in discovery, exploration, and colonization	2	1	2	2	7	2	1	.....	.....	.....
	300	.....	545	10	390	320	.....	.....	.....	.....
	6	.....	45	27	19	9	.....	.....	.....	.....
Study of three type colonies	2	.....	1	.....	5	4	1	.....	.....	.....
	100	.....	.....	.....	530	960	.....	.....	.....	.....
	31	.....	.....	.....	15	37	.....	.....	.....	.....
Intercolonial wars	1	.....	2	.....	6	4	1	.....	.....	.....
	.....	.....	225	.....	435	80	.....	.....	.....	.....
	.....	.....	19	.....	29	1	.....	.....	.....	.....
American Revolution	.....	1	1	1	4	6	1	.....	.....	.....
	.....	.....	.....	.....	570	615	.....	.....	.....	.....
	.....	.....	.....	.....	9	32	.....	.....	.....	.....
Critical period	.....	1	1	1	5	4	3	.....	.....	.....
	.....	.....	.....	.....	635	372	720	.....	.....	.....
	.....	.....	.....	.....	16	20	15	.....	.....	.....
Making the Constitution	.....	1	1	1	5	4	3	.....	.....	.....
	.....	.....	.....	.....	500	146	300	.....	.....	.....
	.....	.....	.....	.....	11	11	5	.....	.....	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies: History—*Continued*										
Starting the new government	.....	1	1	1	3	5	4	.....	.....	.....
	.....	.....	.....	.....	500	820	240	.....	.....	.....
	.....	.....	.....	.....	14	14	6	.....	.....	.....
National struggle for commercial independence	1	.....	1	1	3	5	5	.....	.....	.....
	.....	.....	.....	.....	760	736	160	.....	.....	.....
	.....	.....	.....	.....	15	11	6	.....	.....	.....
Industrial progress before Civil War	.....	1	.....	1	1	4	5	1	.....	.....
	.....	.....	.....	.....	.....	250	1,176	.....	.....	.....
	.....	.....	.....	.....	.....	8	26	.....	.....	.....
Slavery issue	.....	2	.....	1	2	4	6	1	.....	.....
	.....	160	.....	.....	525	700	540	.....	.....	.....
	.....	14	.....	.....	15	15	19	.....	.....	.....
Civil War	.....	2	.....	1	1	4	6	2	.....	.....
	.....	360	.....	.....	.....	500	420	199	.....	.....
	.....	27	.....	.....	.....	22	12	3	.....	.....
Period of reconstruction	.....	1	.....	1	.....	3	7	3	.....	.....
	.....	.....	.....	.....	.....	400	835	653	.....	.....
	.....	.....	.....	.....	.....	8	18	30	.....	.....
Industrial progress	1	1	.....	1	.....	3	6	4	.....	.....
	.....	.....	.....	.....	.....	900	695	372	.....	.....
	.....	.....	.....	.....	.....	14	8	41	.....	.....
Territorial growth	.....	2	.....	1	1	4	7	3	.....	.....
	.....	275	.....	.....	.....	120	390	190	.....	.....
	.....	21	.....	.....	.....	12	16	11	.....	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies: History—*Continued*										
Transportation and communication	.....	2	.....	1	1	3	8	1	.....	.....
	.....	100	.....	.....	.....	175	640	.....	.....	.....
	.....	9	.....	.....	.....	2	13	.....	.....	.....
Study of national issues	.....	1	.....	1	1	3	2	6	.....	.....
	.....	.....	.....	.....	.....	220	640	2,400	.....	.....
	.....	.....	.....	.....	.....	20	1	62	.....	.....
International relations	.....	1	.....	1	1	3	4	6	.....	.....
	.....	.....	.....	.....	.....	400	890	1,744	.....	.....
	.....	.....	.....	.....	.....	15	11	35	.....	.....
Community civics:										
Relations with other people	1	3	4	1	5	1	1	2	5	.....
	.....	375	375	.....	190	.....	.....	60	371	.....
	.....	44	29	.....	14	.....	.....	9	6	.....
First community we know	1	3	3	1	5	.....	1	2	5	.....
	.....	125	175	.....	175	.....	.....	16	371	.....
	.....	31	9	.....	16	.....	.....	2	6	.....
Communities closely related to us	1	2	2	2	5	.....	1	2	5	.....
	.....	25	25	110	190	.....	.....	262	371	.....
	.....	14	6	45	21	.....	.....	21	6	.....
How communities grow	2	2	4	2	4	.....	.....	2	4	.....
	225	175	225	90	125	.....	.....	438	110	.....
	25	6	14	25	15	.....	.....	29	3	.....
Political communities	2	2	4	2	2	1	1	4	4	.....
	25	25	35	25	100	.....	.....	2,030	130	.....
	45	1	8	2	2	.....	.....	43	4	.....

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies: Community civics—*Continued*										
The citizen and his government	.....	1	3	1	3	1	2	2	5	.....
	.....	.....	60	.....	140	.....	25	166	246	.....
	.....	.....	12	.....	12	.....	21	1	5	.....
Health	3	2	3	2	5	1	2	1	5	.....
	275	0	65	250	390	.....	190	.....	340	.....
	95	28	10	38	37	.....	1	.....	5	.....
Protection of life and property	.....	2	3	1	3	2	1	3	5	1
	.....	25	50	.....	650	75	.....	150	534	.....
	.....	27	2	.....	16	11	.....	3	9	.....
Education	.....	2	2	.....	3	1	2	2	5	.....
	.....	25	5	.....	430	.....	150	40	400	.....
	.....	28	6	.....	9	.....	7	1	5	.....
Recreation	.....	1	1	1	2	1	1	3	5	1
	.....	.....	.....	.....	105	.....	.....	95	130	.....
	.....	.....	.....	.....	9	.....	.....	1	4	.....
Community-planning	.....	.....	1	1	1	2	1	3	5	1
	.....	.....	.....	.....	.....	160	.....	215	296	.....
	.....	.....	.....	.....	.....	1	.....	7	6	.....
Communication and transportation	.....	.....	2	1	.....	2	1	3	3	1
	.....	.....	50	.....	.....	480	.....	675	80	.....
	.....	.....	7	.....	.....	6	.....	22	1	.....
Wealth (getting a living)	.....	.....	2	1	1	2	1	3	2	2
	.....	.....	10	.....	.....	360	.....	320	180	60
	.....	.....	2	.....	.....	9	.....	7	1	13

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies: Community civics—*Continued*										
Care of the unfortunate	.....	.....	1	1	1	2	.....	4	3	4
	.....	.....	.....	.....	.....	50	.....	125	296	201
	.....	.....	.....	.....	.....	88	.....	58	3	12
Right living	.....	.....	1	1	2	2	.....	1	3	2
	.....	.....	.....	.....	120	240	.....	.....	70	243
	.....	.....	.....	.....	2	4	.....	.....	4	8
American ideals about government	.....	.....	1	1	1	2	.....	2	5	2
	.....	.....	.....	.....	.....	115	.....	435	236	216
	.....	.....	.....	.....	.....	7	.....	6	6	16
How our laws are made and enforced	.....	.....	1	1	1	2	.....	2	5	2
	.....	.....	.....	.....	.....	70	.....	150	700	172
	.....	.....	.....	.....	.....	12	.....	2	15	25
How the government is supported	.....	.....	1	1	1	1	.....	5	2	4
	.....	.....	.....	.....	.....	.....	.....	410	192	453
	.....	.....	.....	.....	.....	.....	.....	91	4	30
Vocational civics:										
General aims	.....	.....	1	.....	1	.....	2	.....	.....	3
	.....	.....	.....	.....	.....	.....	240	.....	.....	340
	.....	.....	.....	.....	.....	.....	4	.....	.....	11
Specific aims	.....	.....	1	.....	1	.....	2	.....	1	3
	.....	.....	.....	.....	.....	.....	1,630	.....	.....	1,810
	.....	.....	.....	.....	.....	.....	1	.....	.....	32
Topics	.....	.....	1	.....	1	.....	2	.....	1	2
	.....	.....	.....	.....	.....	.....	1,350	.....	.....	1,420
	.....	.....	.....	.....	.....	.....	3	.....	.....	3

TABLE XXX—*Continued*

	Grade									
	5-1	5-2	6-1	6-2	7-1	7-2	8-1	8-2	9-1	9-2
Social studies—*Continued*										
Economic civics:										
Universality of labor				1			1		1	2
										85
										3
Conditions limiting vocational choice									1	1
Work and its importance				1				1	1	2
										70
										2
Agencies of production				1				1	1	2
										175
										12
Modern economic organizations				1					1	
Government as an economic agency									1	1
Modern economic problems				1				1	1	2
										275
										16

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